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A Financial Economic Approach

to

Management Information

in the

Wine Industry

Chris du Toit
DTTCHR009
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Abstract

Wine is a beverage that accompanies and enhances a wide range of occasions, cuisines and even religious ceremonies in many cultures. It claims health benefits and brings wonderful memories to mind. We all have our own story to tell when it comes to wine. This however represents the consumer’s experience. What is the producer's experience?

Situation

Wine markets across the globe are under pressure. According to Nielsen, over 3300 wine brands have flood grocery stores since 1999 and they now represent about 70% of active brands. South Africa owns 2.4% of the world's export market share, the 9th biggest, while wine production ranks 8th in the world, producing 855.3 million liters for 1.7% of the world's total production.

Wine producers receive only 2% of the average R24 shelf price per 750ml bottle of wine sold in supermarkets and at other retail outlets. On top of this, the VinPro agricultural economist says wine production costs have increased by 17% but producers' incomes have risen only by an average of 3%.

The industry had to deal with many challenges in its more than 300 year history e.g. the complete destruction of vineyards in 1890's due to phylloxera, single channel marketing, etc. but the economic reality of income not keeping pace with rising production costs brings one of the biggest challenges yet to the industry.

Currently South Africa is known for its superb technical skills as far as wine making and viticulture is concerned. This can be seen from the amount of awards we as a country win in international competitions. It does not however create the necessary profits on the bottom line. It helps to sell the product, but still wine producers are more and more under extreme financial pressure and the current world economic condition is not helping. It is just not good enough to make the best possible wine any more, as several other forces are obviously at play here. We need to get an improved understanding of what really makes this business viable.

Concern

Financial statements provide useful information to management, but there is much relevant information that is omitted. Factors of market demand, resource availability, technological developments, price of raw materials, human capital, tariffs, government regulation, competitor actions, world economics, wars, acts of nature, etc. can have a dramatic effect on a business's prospects.

My concern thus stems from the limited management information that is available in the wine industry. There are in fact several areas that this concern entails of which I will mention four.
Firstly it is about the expectation of the winery for management information from their auditors due to a historically strong relationship between them. This led to the non appointment of the same skills level of accounting people as that of the winemaker and viticulturist. Over time the role of the auditor in the business has changed completely as the auditing environment underwent drastic changes and became far more regulated and controlled due to happenings like Enron etc., but the expectation of the farmer still exists for management information from the auditor.

The type of information that is delivered, which is mainly financial, versus the actual requirement, economic information, leaves the winery with major gaps in their ability to properly manage the business.

The second management information concern is that of proper costing of work-in-progress and stock. For financial reporting wine is generally valued by using the net realizable method. This basically uses the average price for that specific cultivar in the market (See detailed example Figure 2.3 Stock valuation on page 14) while the actual cost might be at a far higher value. The best to explain this situation is by using an actual example from my case studies.

A specific product from Farm A, a 2006 vintage with an October 2009 release, returns an average income of R159.00 per bottle to the farm. The cost of the product, inclusive of packaging is R69.31 (a gross profit return of 56.4%). The packaging of this product is R27.91 per bottle leaving us with the juice or wine price of R41.40 per 750ml or R 55.20 per litre. Following the net realizable value method the following result would be achieved. In 2006, the year it was harvested, the average bulk wine market price for cabernet from the Stellenbosch area was R 5.35 per liter. This requires a write off of R32.21 against the stockvalue of R 37.56. One of the case studies ended up with a 4% gross profit in 2008 leaving the owner with massive questions on why he is even considering being in the business.

All the cost spent on this product up to bottling in December 2008, R 17.94 gets written off against cost of sales creating further distortion of the gross profit every year. Now remember that in 2007, 2008 and 2009 there are additional vintages with similar effect. Yes, there should be the contra effect of the inflated margins from sales of previous vintages, but if it is a startup company, or a growing company, then it does not have that contra value to balance the effect out in that year. Try to explain this to the shareholder, owner or banker who must finance the business.

This leaves us with several questions on our current accounting practises to truly manage our business. Do we really understand our business, the intent of our products and what we want to achieve if this is the way we account for it? By taking a write-off on stock value in one year and achieving high returns in another does not reflect the true picture. Even worse, if the marketing person was unaware of this adjustment of the cost of the product, communication between marketing and accounting was poor and no specific marketing positioning for this product was in place, the possibility of selling this product at say a 50% gross profit on the cost in the system, was very real. This would give us a profit of R 31.58, fantastic, but if we take the actual cost of
R 69.31, we are still short R 6.15. Now in reality this happens all the time. Three out of four case studies have this problem with their products right now as they have no understanding of the initial cost, as they only have the net realizable value on record to work with.

Thirdly we need to understand all the technical aspects of the grape growing and winemaking procedures in our business and the effect it will have on our bottom line. What is the potential of my vineyards? What is the effect of yield on my bottom line and how do changes in yield affect the quality? Does the adding of wood maturation to the product add enough additional quality to yield a viable return? Do I now the amount of liters to produce to satisfy the market demand or do I process blindly every ton of grapes produced?

The fourth area of management information concern is that of market information. Although I present it only now I believe this is the alpha and omega of everything that you plan in your business. Where is my market, which products, price points, volume, presentation, etc. are all part of the economic information requirement to properly manage your business.

A lack of understanding of the wine business's inner workings together with the lack of relevant management information clearly exists.

Question

How can we use principles from financial economics to improve business planning in the wine industry?

Answer

Financial economics is the branch of economics concerned with "the allocation and deployment of economic resources, both spatially and across time, in an uncertain environment; a perfect description for the wine industry of today. To overcome this we need to reduce the uncertainties we deal with.

Drawing from the viable systems model I address the uncertainties in a twofold approach: a balancing of the external environment and the internal environment. By elevating the technical skills of people into the defining of an external environment the focus moves to defining demand. This demand is recorded as part of the strategic objectives of the business and a proposal is formulated.

The internal environment then needs to match the proposal with an offering. The financial/accounting disciplines represent the establishing of rules, resources, rights, responsibilities and links to all the components of the system. This process to find an offering that matches the proposal will continue until a satisfactory answer is found. The framework for such a system is what I have developed: an integrated business planning model that facilitates the external and internal environment and provides management with business knowledge.
Business knowledge provides guidance to managers so that they can make judgments, formulate decisions and do their work. Business knowledge provides context. It tells us who should act, what should be done, when it should happen, where work should be conducted, why it is important, and how to do it so that we can optimize our effectiveness. Implicit in this view of knowledge is the assumption of purpose or relevance to the business’ mission. The inclusion of purpose into knowledge brings new insight.

Additional value gained from this model is in addressing the four parts of the concern as mentioned earlier. The lack of skilled accounting people can be overcome by setting up a consultancy business with the model that supplies the information to the farmer. Secondly supplies a costing model for the wine industry which is as far as I know the only model available. Thirdly it draws all technical information into the utilization of decision making via the integrated model and enhances best utilization and lastly it integrates the strategic marketing plan into the production and assists in ensuring creating value. Other values are the 10 year forward planning for supply and demand, capital and cash flow requirements.

**Rationale**

The holistic abilities of the model allows for the development of ideas into measurable targets and then into actionable knowledge within the boundaries of available resources.

**Evaluation**

Actionable knowledge becomes available for management to enhance their decision making in their quest for viability and sustainability. Information is business specific and enhances relevance to achieve viability and sustainability. Introducing the external and internal environment into the business planning framework brings an increased level of utility to the work. The financial economic approach improves the competitiveness and viability via the integrated business plan and enforces the validity.

The following ethical approach was followed. Honesty and integrity were at the core of my work. The integrated business plan approach is exclusively my idea and all of its factors and calculations are my own design. When referrals to other author's work were made, it was, as far as my knowledge is concerned, referenced every time.
2 Introduction and Overview

2.1 Situation

Wine markets across the globe under pressure.

Wine is a beverage that accompanies and enhances a wide range of occasions, cuisines, and even religious ceremonies in many cultures. It claims health benefits as epidemiological studies have consistently demonstrated that moderate consumption of alcohol and wine is statistically associated with a decrease in death due to cardiovascular events such as heart failure. Truly a product to be enjoyed, but what does the producer have to deal with.

According to Nielsen\(^2\), over 3300 wine brands have flooded grocery stores since 1999 and they now represent about 70% of active brands today.

South Africa owns 2.4% of the world's export market share, the 9th biggest exporter of wine overall.

Wine production ranks 8th in the world\(^3\), producing 855.3 million liters, 1.7% of the world's total production.

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\(^3\) http://www.wineroute.co.za/graphs_international.asp
It is an extremely competitive segment with South Africa positioned far down on the scale. How are we geared to cope with these challenges?

The industry had to deal with many challenges in its more than 300 year history e.g. the complete destruction of vineyards in 1890's due to phylloxera, single channel marketing, etc. but the economic reality of incomes not keeping pace with rising production costs brings one of the biggest challenges yet to the industry. VinPro agricultural economist Gert van Wyk says costs have increased by 17% but producers' incomes have risen only by an average 3%. The roller coaster back into the world markets in the first couple of years after 1994 with the Nelson Mandela era eroded quickly into the ability to compete.

Oenologists claim that four factors determine the quality of wine: soil, climate, vine type and man. These are also the same factors that the French refer to as "terroir". Wine people love this topic and can talk endlessly about the qualities of wine and the influence of "terroir" on the wine, but when we have to buy, most of the people in the world unfortunately buy on price. This contrast between what we perceive as "value" and our willingness to part with our money to embrace the "terroir" requires careful planning from the wine producer of today. The very essence of wine making, to produce a product to reflect the "terroir" therefore implying making the best wine possible from a specific site, is time and cost intensive and requires high prices to justify the effort. High price point items, as we know, only sell when it has a perceived high brand value. This means that to make the best possible wine is just not good enough any more, as several other marketing forces are at play here. Open up your newspaper and the advertisements from your local supermarket boasts several ongoing value for money deals, e.g. buy a case and get several rands off your price per bottle, delivering more and more "value" for your money. The selection is staggering and the offers unbelievable. The result in the end however is that most wine is sold based on price point, bringing the ultimate no-no for wine people: "wine has become a commodity".

The dictionary explanation of commodity 'something of use, advantage, or value' has ironically a meaning to it that I believe we can definitely learn from. We however need to get past the mystique and romantacism of the wine aura. We need to get an improved understanding of what really makes this business tick, so that we can develop a theory for business planning for this industry.

My first encounter into the wine industry was in 1984 when I worked for a company called Donkerhoek Data, who supplied and implemented software packages to the wine industry. A software package for recording the receival of grapes into the cellar, mostly cooperative cellars, was their flagship. This would record the producer, cultivar, weight, sugar, acid levels and a 'visual' rating when grapes were delivered to the cellar. It's purpose was mainly to determine the volume delivered, quality catagory and thus balance due to the producers. Other software packages available were the cost allocation program for vineyard blocks, covering labour, materials used e.g. sprays and

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4 http://www.fin24.com/articles - Wine farming not sustainable'
5 Encyclopedia of Wines & Spirits, Alexis Lichine's, Sixth Edition, 1985
tractor costs and their most common used product, their bookkeeping package. I left this company in 1987 and on my return to the industry in 1999, when I was appointed by Rustenberg Wines to develop a costing system, nothing significantly had changed in the wine industry as far as software for bookkeeping and costing was concerned. They, Donkerhoek Data, were still the only company doing vineyard costing software and one other company, Ezy Wines, had the majority of cooperative wineries for cellar and financial software packages. Over the last few years a lot more interest was shown by software companies in the industry and today there are several players around of which the following are the leading companies. Wine MS is the most represented as far as costing is concerned, the Pastel Partner accounting package the widest used by wine producers and Ezy Wines still dominates the cooperative cellar arena with a handful of producers working with NAV and SAP, which are highly developed integrated systems. What does this tell us? Simply that there is sufficient software available today to have proper financial and data recording systems in place.

The main purpose of my appointment at Rustenberg in 1999 was to determine the cost of their wine. A strange request, one could think if taken into account the importance of such a matter in any production setup and the attention it has received in other industry’s, but this was not a strange request then in the wine industry or even now in 2009, as three of my four final case studies for this paper did not have any system to determine the cost of their product. If looking at the previous paragraph where we have established that it is not the shortage of software systems, then what is the problem?

As part of the initial approach in 1999 I met with one of the leading auditing firms in the wine industry where I was bluntly told that the calculation of the cost of wine is not possible and that the going market price for bulk wine is the only true value of wine. That really lit my fire to prove that it was possible. Let us briefly look at the financial approach of wine costing.

Apart from my research done for all the small wins for this paper I have decided to put my findings to test by applying it to four wine businesses. It included two farms from Stellenbosch, one from Wellington and one from Robertson. Interesting about these four was the different stages they were in of a business life cycle. It varied from old and established to very recent start ups to a bulk producer clawing its way into the bottle market. This 'testing of findings' phase truly brought amazing insight into this work.

The auditors of all my case studies, represented by a different audit firm in each case, all follow the same approach of net realizable value, where it utilises the current open market value per litre to valuate stock. Yes, the same approach as per my discussion in 1999. There are very good arguments to support this approach from a financial perspective, but it is an extremely limiting approach when it comes to management information with little understanding of the real issues of the inner workings of the business and the potential inherent brand value of a product. If it was only about volumes and that quality at all these yields were exactly the same and "terroir" was truly only a French marketing invention to obtain higher prices, then it would make perfect sense, but there is however so much more.
The best to explain this situation is by using an example from the case studies. (See Figure 2.3)

**Figure 2.3 Stock valuation**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Relevant method</th>
<th>Unit of measure</th>
<th>Net realizable method</th>
<th>Difference</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr-06</td>
<td>Grapes @ 5 tons per hectare</td>
<td>1</td>
<td>ton</td>
<td></td>
<td></td>
<td>Total grape production</td>
</tr>
<tr>
<td></td>
<td>Juice extracted @ 630 litres per ton</td>
<td>18.53</td>
<td>liter</td>
<td></td>
<td></td>
<td>Total litre production</td>
</tr>
<tr>
<td></td>
<td>New wood component</td>
<td>17.96</td>
<td>liter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cellar cost recovered</td>
<td>1.06</td>
<td>liter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jun-06</td>
<td>Financial year end</td>
<td>2</td>
<td>liter</td>
<td>5.35</td>
<td>32.21</td>
<td>Write off to cost of sales</td>
</tr>
<tr>
<td></td>
<td>Cellar cost recovered</td>
<td>3</td>
<td>liter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jun-07</td>
<td>Financial year end</td>
<td>4</td>
<td>liter</td>
<td>4.57</td>
<td>7.75</td>
<td>Write off to cost of sales</td>
</tr>
<tr>
<td></td>
<td>Cellar cost recovered</td>
<td>5</td>
<td>liter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jun-08</td>
<td>Financial year end</td>
<td>6</td>
<td>liter</td>
<td>4.39</td>
<td>7.21</td>
<td>Write off to cost of sales</td>
</tr>
<tr>
<td></td>
<td>Cellar cost recovered</td>
<td>7</td>
<td>liter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dec-08</td>
<td>Final cost for wine</td>
<td>8</td>
<td>liter</td>
<td>4.89</td>
<td>3.14</td>
<td>Write off to cost of sales</td>
</tr>
</tbody>
</table>

Following the net realizable value method (See green block in Figure 2.1) the following result would be achieved. In 2006, the year it was harvested, the average bulk wine market price for cabernet from the Stellenbosch area was R 5.35 (2) per liter*. This requires a write off of R 32.21 against the stockvalue of R 37.56. One of the case studies ended up with a 4% gross profit in 2008 leaving the owner with massive questions on why he is even considering being in the business.

All the cost spent on this product up to bottling in December 2008, R 17.94(3+5+7) gets written off against cost of sales creating further distortion of the gross profit every

* SAWIS - 2006 Bulk wine prices
year. Now remember that in 2007, 2008 and 2009 there are additional vintages with similar effect. Yes, there should be the contra effect of the inflated margins from sales of previous vintages, but if it is a startup company, or a growing company, then it does not have that contra value to balance the effect out in that year. Try to explain this to the shareholder, owner or banker who must finance the business.

This leaves us with several questions on our current accounting practises to truly manage our business. Do we really understand our business, the intent of our products and what we want to achieve if this is the only way we account for it. By taking a write-off on stock value in one year and achieving high returns in another does not reflect the true picture. Even worse, if the marketing person was unaware of this adjustment of the cost of the product, communication between marketing and accounting were poor and no specific marketing positioning for this product was in place, the possibility of selling this product at say a 50% gross profit on the cost in the system, was very real. This would give us a profit of R 31.58, fantastic, but if we take the actual cost of R 69.31, we are still short R 6.15. Now in reality this happens all the time. Three of the four case studies mentioned earlier have this problem with all of their products right now as they have no understanding of the initial cost, as they only have the net realizable value on record to work with.

Another consideration that is possible based on the initial write offs according to the net realizable concept might be the decision of not producing the grapes at R 11 675.48 (due to low yield of specific vineyard) per ton and a resulting litre price of R 18.53 (extraction of 630 litres per ton). The average market value for grapes from Stellenbosch in 2006 was R 2 142 7 per ton and bulk wine as the above R 5.35 2.

The reality is that this is one of South Africa's top wines, selling out within a couple of months from release and making a fair profit. It most definitely answers the viability questions and is very sustainable. Clearly the accounting practises in use does not cater for the type of management information that is required for decision-making from market to vineyard. The value of the brand and understanding of the market segment that consumes this type of product at this specific price point allowed this farm to extract value from what appeared to be senseless.

Financial statements provide information that is useful to management, but there is much relevant information that is omitted. Factors of market demand, technological developments, price of raw materials, human capital, tariffs, government regulation, competitor actions, wars, acts of nature, etc. can have a dramatic effect on a business's prospects.

You need to understand the market that you are producing for, the environment you are producing in and the legislations your are bound by. You need to understand your own strengths and weaknesses so that you can understand how to extract value from your resources and how to build a brand that will enhance your "terroir", your story and your sustainability and profitability in that market. You need a proper business plan.

2 SAWIS - Producer cellar grape prices 2006-2008
2.2 Concern

A lack of understanding of the wine business's inner workings exists.

It is clear from the situation above that a definitive lack of understanding of the wine business's inner workings exists. It is one of the few industries that have to deal with the bare elements of nature via agriculture practices on the one hand and with the complex and harsh competitive markets of the world on the other hand. The financial approach of valuating stock without taking into account the intent of that stock further cripples the ability to plan the business's sustainability and profitability. Even producing the 'best' possible wine is not good enough either if it has no specific market support to create pull through and generate the required income at the correct price point.

So what are we really dealing with here? In classical microeconomic theory a company is a "black box," a purposeful entity whose inner workings cannot be observed and whose behaviour is determined almost entirely by the markets in which it competes. This is so true for the wine business and therefore it requires the appropriate accounting practices to supply management with actionable business information.

All of the above challenges that the wine business faces in coordinating its inner activities, relate to knowledge. Though it pervades all forms of activity, knowledge has received surprisingly little management attention outside the technical contexts of grape growing and wine making. It is no irony that South Africa is one of the leading countries as far as technical skills in wine making and viticulture are concerned. We have some of the best training and research facilities available and many of the winemakers and viticulturists have been exposed to international experience and training.

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*The new economics of organization, The McKinsey Quarterly 1998 Number 1*
The concern is the alignment of all these pools of technical skills into actionable knowledge represented in a business plan to address the burning issues of viability and sustainability. (Figure 2.4)

Figure 2.2 reflects the complexity of what we have to deal with in the wine industry. There are so many variables involved and by adding personal interest of individuals to it, it becomes a real thriller.

This is however so overwhelming and needs to be simplified. Getting a clear understanding of the concern is crucial and therefore we need to pinpoint the real issue on hand. In Figure 2.3 I capture the concern to reflect the industry as I understand it in the following concern causal loop diagram (Figure 2.5).
It became evident through observation and conversational interviews that the degree to which key variables in the wine business is managed, revolves firstly around the competency (technical skills) of the people and secondly around the four critical levels of understanding, namely than of end product (goal), vineyard (soil, climate and vine type), market and financial impact from a technical perspective.

By exploring the relationship between these four variables the level of competency of the people was identified as the core variable. This variable was recognized as core because it directly drives the decision making/managing of the wine business to achieve the desired quality and value at the required price point. It was disturbingly production orientated for this day and age. From my case studies over the last few months the following facts. In the case of all four, we had a qualified person in charge of the vineyards and a qualified wine maker. In two of the four we had a qualified marketing person and the other two we had marketing as part of other responsibilities. Apart from Rustenberg, where I work, the other three farms either used a part time bookkeeper, a part of responsibilities position, or were fully dependent on their auditors. A very basic monthly financial report would be drafted internally, but for their stock valuation, (two of four), and the full set of financial accounts, (three of four), had to wait for their once a year audit.
This make up of the business with its high technical skill demands naturally requires well developed internal systems. From Figure 2.5 you can see that between the level of understanding of the market (marketer) and level of understanding of the end product (winemaker) a balanced loop exists and that on skills level they communicate and function well. Similar balanced loop exists between winemaker and viticulturist.

From the financial side it is more of a one directional scenario. This situation developed over a long period of time. Looking at the early years of grape production and the single channel marketing system via KWV a certain practice and relationship was molded in the wine business. It was sufficient then to get your results once a year, your grape crop was sold in one go and every month you would send all your invoices and cheques in a box to the local accounting firm/auditor. I know of specific wineries for which this is still true. They would discuss these results on an annual basis and over time a special relationship was developed between the farmer and the auditor.

This relationship slowly developed into an expectation of fulfilling a specific function or role. As the business environment changed, e.g. adding functions like winemaking, brand building and marketing to the wine farms, a completely new level of information or feedback was required to base decisions on. At the same time the auditing environment also has undergone drastic changes and became far more regulated and controlled due to happenings like Enron etc. The responsibilities of the auditor and the role they play have changed drastically from those early years (see sample of standard auditors notes from an actual set of financial statements).

**Auditor's Responsibility**

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with International Standards on Auditing. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.

**Director's Responsibility**

The directors are responsible for the maintenance of adequate accounting records and the preparation and integrity of the financial statements and related information. The auditors are responsible to report on the fair presentation of the financial statements. The financial statements presented on pages a - n have been prepared in accordance with Statements of Generally Accepted Accounting Practice for Small and Medium-sized Entities (SA GAAP for SME's) and in the manner required by the South African Companies Act, 1973, and includes amounts based on judgments and estimates made by management.
The expectation from the farmer however still exists for 'information' to base business planning and management decisions on. The once a year meeting to discuss the result of trading, stock valuation and financial position has however become an experience received with mixed feelings as it became a non-negotiable affair ruled by so called accepted standards. The fact that it is based on the financial requirements for reporting is somehow missed in the process. This imbalance can be seen from the arrows within the concern loop diagram (Figure 2.5). This historic 'empowered relationship' and accompanying expectation of providing the information and advice required, a one directional communication system has developed. The expectation of guidance from the farmer and the purpose of the audit are now so far removed from each other that it does not address the actual requirement of the farmer anymore, but is used as such for the lack of having anything else. Given this scenario as described above, the degree to which the offering matches the proposal is therefore purely an outcome with varying result, influenced by individuals' preferences and agendas. It is a skewed picture of what happened during a specific period and more often than not, an unexpected surprise. This 'unexpected surprise' has now unfortunately become the 'accepted outcome' and the blame for variances put on the economic crisis of the world or country.

To utilize the financial information to make economic decisions, you are actually not comparing apples with apples. From the stock value of bulk wine through to the finished product it does not represent the real value; it only represents the ultimate risk if having to sell everything immediately. It is of no value for long term planning and therefore impossible to align with the strategic objective. This misinformation then goes back to your technical people, who then utilize this to base decisions on and plan the business. It is terrifyingly vicious cycle that has got only one possible result, that of total ruination. This is unfortunately the reality of the wine industry.

Over the last couple of years the technical skills of the winemakers and viticulturists, being of such high world standards, has pushed the South African products into a level of world recognition. We often win awards for the fantastic quality and value we offer, but it does not reflect on the bottom line.

The 'Concern Behaviour over time graph' in Figure 2.6 provides us this clear picture. The highly developed technical skills of the role players have raised us to good levels, but are not enough to address the pressures of the world economic situation. We require a different understanding for this industry than the current one. The reality is that profitability is diminishing and therefore putting viability and sustainability at risk.
The picture looks bleak. We do not have proper information to plan our business. Profits are diminishing and the world economy is in dire straits.

2.3 Question

How can we use principles from financial economics to improve business planning in the wine industry?

2.4 Answer

The inclusion of purpose into knowledge brings new insight.

Financial economics is the branch of economics concerned with "the allocation and deployment of economic resources, both spatially and across time, in an uncertain environment". I am almost convinced Robert Merton did his research in the wine industry as it describes the environment so real. It is additionally characterized by its "concentration on monetary activities", in which "money of one type or another is likely to appear on both sides of a trade". The questions within financial economics are typically framed in terms of "time, uncertainty, options and information".

In our scenario time will refer to the period where vineyard activities start for a specific vintage until the final product is sold in the future

Uncertainty (or risk): Markets and price points are uncertain. Quality is uncertain. Options refer to decisions at a later time that will affect subsequent income streams and...

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* Robert C. Merton - Nobel Lecture
information refers to knowledge of the future that can reduce the uncertainty associated with future sales.

The futurist Alvin Toffler's theory on the new world economy is symbolized by three waves. The first wave, about 10 000 years ago, was the agricultural revolution (ironically the base of this industry). Control of natural resources was the means to wealth (and still is perceived as such in the wine industry). The next wave was the industrial revolution (technical gurus we are), which took place about 300 years ago. Money was the new target (and still helps). Whoever had money could control wealth. But the world is now transformed by a new wave, the knowledge revolution.

Knowledge is defined by the Oxford English Dictionary as (i) expertise, and skills acquired by a person through experience or education; the theoretical or practical understanding of a subject, (ii) what is known in a particular field or in total; facts and information or (iii) awareness or familiarity gained by experience of a fact or situation. Philosophical debates in general start with Plato's formulation of knowledge as 'justified true belief'. There is however no single agreed definition of knowledge presently, or any prospect of one, and there remain numerous competing theories. According to this definition we have the fantastic privilege of having such knowledge available in our industry. What is the missing understanding then?

Knowledge acquisition involves complex cognitive processes: perception, learning, communication, association and reasoning. The term knowledge is also used to mean the confident understanding of a subject with the ability to use it for a specific purpose/intent if appropriate. This adds value! It therefore means knowledge is not simply a higher level of information. No, it comprises a range of practices used to identify, transcribe, create, represent, distribute and enable adoption of insights and experiences. Such insights and experiences comprise knowledge, either embodied in individuals or embedded in organizational processes or practice. Knowledge in business provides guidance to managers so that they can make judgments, formulate decisions and do their work. Business knowledge provides context. It tells us who should act, what should be done, when it should happen, where work should be conducted, why it is important, and how to do it so that we can optimize our effectiveness. Implicit in this view of knowledge is the assumption of purpose or relevance to the business' mission.

This inclusion of purpose into knowledge brings a new insight to the table. We know our strategic objective. We have some of the best technical skills (knowledge) around. We have a perception of the proposal as we designed it ourselves in the first place with the help of our 'knowledge'. This means we need to manage and design the offering to match the proposal; intent or purpose.

11 The astonishing pace of the knowledge era, José Luis Cordeiro, USB LEADERS' LAB FEBRUARY 2009
12 Wikipedia, the free encyclopedia
In Figure 2.7 Answer causal loop diagram I propose a theory that can answer this question and address our concern.

The following discussion based on Figure 2.7 Answer causal loop diagram will explain my answer.

### 2.5 External environment

The demands of the external environment must drive the application and alignment of the resources of the internal operations.

One of the conditions we have to meet is viability; therefore we have to start within such a framework. A viable system is any system organized in a structural way to meet the demands of surviving in a changing environment. Not adjusting to the changing environment was one of the issues raised which created the situation as it stands. One of the prime features of systems that survive is that they are adaptable.
The Viable System Model (VSM) is not a new idea. Created by Stafford Beer and described in his book 'Brain of the Firm' (1972), it has been used extensively as a conceptual tool for understanding organizations, even redesigning them if needed and supporting the management of change. Despite its successful application within numerous private and public sector organizations, the VSM is not yet widely known among the general management population. There are two main reasons for this. Firstly, the ideas behind the model are not easy to grasp; secondly, they run counter to the great legacy of thinking about organizations dating from the industrial revolution - a legacy that is only now starting to be questioned. Organizations have been viewed traditionally as hierarchical institutions that operate according to a top-down command structure; add in our scenario a tradition of family owned small businesses and once a year audit meetings. The increasing rate of change and complexity surrounding most organizations, however make this modus operandi too slow and inflexible. The VSM offers a holistic view of behaviors in today's society.

Figure 2.8 Viable systems model

A requirement of VSM is that an organization is a whole system that must be in balance with its environment. Figure 2.8 illustrates this model schematically.

A viable system is composed of five interactive systems.

System 1 in a viable system contains the primary activities.

System 2 presents the information channels and bodies that allow the primary activities of system one to communicate between each other and which allows system three to monitor and coordinate the activities within system one.

Systems 3 represents the structures and controls that are put into place to establish rules, resources, rights and responsibilities of system one and provide an interface with systems four and five.

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13 The Viable System Model as a Framework for Understanding Organizations: Raúl Espejo and Antonia Gill
15 http://www.enneraldinsight.com/fig/0690170907001.png
16 The Viable Systems Model, Jon Walker, 1991
System 4 is responsible for looking outwards to the environment to monitor how the organization needs to adapt to remain viable. It is also known as the external eye and is all about the ability to understand the environment we trade in.

System 5 is responsible for policy decisions within the organization as a whole to balance demands from different parts of the organization and steer the organization as a whole.

It is further very important to understand that a viable system is a recursive system. Viable systems contain viable systems that can be modeled using an identical description as the higher or lower level system. Therefore, you should find a complete viable system within a system one level (child level) or a system five level (parent level). *(Figure 2.8)*

**Drawing from the viable systems model**

Drawing from the viable systems model we can now position the disciplines at work in their respective categories. Viticulture, winemaking and sales forms part of the primary activities. The financial/accounting disciplines represent the establishing of rules, resources, rights, responsibilities and links to all the components of the system.

The element we miss in our concern causal loop is the link between the demands of the external environment and the alignment of that with the internal operations or primary activities. Currently the production operations with its high skill levels drive a lot of the product decisions. We need to adjust this that the demand from the market must be analyzed and formulated to drive the production to address specific purpose. Instead of working from production up we need to work from the market or demand down. We have to draw on our knowledge resources but from a different perspective. The importance of purpose is non-negotiable as it is in this position that we need to focus to get a whole system to find the balance within the environment of wine business. This is illustrated in *Figure 2.9.*

A very relevant risk in this industry is where, due to the high technical skills of the people involved and the extra--ordinary high profiles created by the press and marketing strategies due to the nature of this business, the importance of the individual becomes bigger than that of the business. This is very dangerous for the business as a whole as it often brings the viewpoint of the individual into play instead of the strategic objective of the company, business or winery. It brings thus an additional reason why business purpose is so important.

This takes us to the first balanced loop as reflected in *Figure 2.9.* We have three claims to deal with: the level of alignment of strategic objective, the level of technical knowledge and the degree to which the offering matches the proposal.
2.5.1 Level of alignment of strategic objective

Broadly defined target that an organization must achieve to make its strategy succeed.

This concept refers to the level of alignment of a strategic objective" which is a broadly defined target that an organization must achieve to make its strategy succeed. Strategic objectives are, in general, externally focused and (according to the management guru Peter Drucker) consists of eight major classifications: (1) Market standing: desired share of the present and new markets; (2) Innovation: development of new goods and services, and of skills and methods required to supply them; (3) Human resources: selection and development of employees; (4) Financial resources: identification of the sources of capital and their use; (5) Physical resources: equipment and facilities and their use; (6) Productivity: efficient use of the resources relative to the output; (7) Social responsibility: awareness and responsiveness to the effects on the wider

17 http://www.businessdictionary.com/definition/strategic-objective.html
community of the stakeholders; (8) Profit requirements: achievement of measurable financial well being and growth.

2.5.2 Level of competency / technical knowledge

Maximum performance is believed to occur when the person's capability or talent is consistent with the needs of the job demands and the organizational demands.

A competency is defined as a capability or ability. It is a set of related but different sets of behavior organized around an underlying construct, which we call the intent or purpose. A theory of performance is the basis for the concept of competency. Maximum performance is believed to occur when the person's capability or talent is consistent with the needs of the job demands and the organizational demands. The person's talent is described by his or her: values, vision, and personal philosophy; knowledge; competencies; life and career stage; interests; and style. Job demands can be described by the role responsibilities and tasks needed to be performed.

2.5.3 Degree to which the offering matches the proposal

A relevant business plan development which can align the offering to matches the objectives of the company.

The offering is the promise represented by the product that will be submitted by the business to the consumer. A proposal reflects the perceived idea of the consumers need by the business. It also represents the bigger mix of goods and services, and price and payment terms offered by a firm to its customers. We therefore need to design a relevant business plan with which we can align the offering to comply with the objectives of the company. This business plan is the result of my research done and the integrated model developed with this information; a tool to manage the offering towards the proposal.

The theory is the creation of a visual representation, via the technical skills of all role players, of the demand and then to utilize the resources to satisfy this demand profitably towards sustainable objectives.

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18 Journal of Management Development, Competencies in the 21st century, Richard E. Boyatzis, Case Western Reserve University, Cleveland, Ohio, USA
2.5.4 Relationship between variables

Intent, altruism and evaluation supports relationships

2.5.4.1 Intent

Intent by definition is a determined and purposeful state of mind accompanying an act. Intent implies an inevitability of a consequence. The proper utilization of intent would thus lead to increased levels of knowledge as described in section 1.4 paragraph 2. It reads “it comprises a range of practices that is used to identify, transcribe, create, represent, distribute and enable adoption of insights and experiences. Such insights and experiences comprise knowledge, either embodied in individuals or embedded in organizational processes or practice”.

This will have the following benefits for us:

Increased level of strategic alignment of objectives with global demands.

Increased level of competency of technical knowledge.

Increased level of understanding of external environment (System 4)

Increased level of policy decisions within the organization as a whole to balance demands from different parts of the organization and to steer the organization as a whole.

An increased level of intent will allow you to constantly increase your ability to comply with the strategic objectives. Figure 2.10 illustrates the logic of this process.

http://www.businessdictionary.com/definition/intent.html
It speaks of a kind of greatness, unselfishness, a matureness that will give a team the ability to achieve synergy; their combined effect is greater than the sum of their individual effects.

This will assist us in consistently optimizing our resources, align our abilities and achieve our objectives. It also refers to the concept of systems thinking.

This will have the following benefits for us:

Increased synergy.
Increased level of strategic alignment with global demands.
Increased level of management accountability.

The better we understand each other, the more effective we will align the strategic objectives.

An increased level of altruism will allow you to constantly increase your ability to cope with the demands of the consumer represented by your proposal. *Figure 2.11* illustrates the logic of this process.
2.5.4.3 Evaluation

Good utilization of evaluation by determination of merit, worth, and significance of the business values and performance using information from the business embedded in a well integrated business plan. This will enhance the strategic objectives of the business.

This concept refers to my understanding of the following: The competency of management’s performance based on business results and their accountability there-of. Constantly revisit the strategic objectives to ensure validity.

This will have the following benefits for us:

Increased viability.
Increased level of strategic alignment with global demands
Increased level of management accountability providing greater intent and effectiveness.

The better we understand the process, the more effective we will align the strategic objectives.

An increased level of valuation will allow you to constantly increase your ability to align with your strategic objectives. Figure 2.12 illustrates the logic of this process.
2.6 Internal environment

Optimum utilization of resources to maximize profitability

Figure 2.13 Operational claims

A further restructuring of the initial causal loop is defined to bring the primary operations into play. The proposal of the first loop is the driver of this loop. By designing the proposal with a clear purpose optimum utilization of resources can be obtained for maximum profitability.

The claims are:
2.6.1 The level of understanding of the soil, climate and vine type

The effect of these components on quality, volume and cost

This is a high skill required function and the responsible person is normally well trained with good experience. A detailed understanding of climate, soil and the vine and the effect each of these components has on quality and volume is one of the key elements of the function of the viticulturist. Added to this will now be the clear purpose laid down in the proposal. In a tasting academy held in January 2008 the world renowned viticulturist, Phillip Freese, presented a talk on "Tasting the Vineyard" in which he specifically emphasized the Steven Covey concept, "Begin with the end in mind". The industry requires leading individuals to teach this concept in the wine industry. It has become a condition that one needs to have a specific understanding of the expected answer when you set out to achieve success. You have to have adequate knowledge of your market to align your wine business from vineyard through cellar with branding, styles and price point to address the exact demand.

The issue was to determine the components that would form the framework of such a business plan and the inter-relationship between them. This inter-relationship would be represented by factors that would be relevant to the purpose. The following results were found from my research.

The basic components of the vineyard are cultivars, e.g. cabernet sauvignon, chardonnay, sauvignon blanc, etc. Blocks, that is the specific site planted with a specific variety according to soil type, microclimate, mesoclimate, direction, etc. and usually are named or numbered.

Each cultivar has a specific identity with a specific performance by area, e.g. Cabernet Sauvignon in Stellenbosch gives a yield per hectare of 7.5 tons on average. The same cultivar in Robertson will give you an average of 15 tons per hectare. Our first component therefore is yield per ton per cultivar. The relevant factor for Stellenbosch is 7.5.

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20 Phillip Freese, Tasting the Vineyard, 2008
21 The 7 Habits of Highly Effective People, Stephen R. Covey,
Obviously there is a quality difference between the two yields and as seen from the Philip Freese talk above, you need to understand and manage it accordingly for best utilization and optimization of resources. It is not only between different regions that there are quality differences; within the same vineyard you will find variances. From our proposal we will have a demand for different styles of wine demanding different quality at different price points which we have to address. The second component we use is therefore a quality (visual/historic) demarcation. The relevant factor for Stellenbosch of 7.5 therefore is deemed a Quality 2 as per Figure 2.14. In Figure 2.15 an example of how blocks are demarcated with the relevant factors. The model deals not only with one year, but across the full spectrum with a ten year forecast. QLY1 thus represents year 1 etc.

This vine is planted in a specific section of land in a specific area with a specific soil type with a certain slope facing in a specific direction, as mentioned earlier, in blocks. It is therefore critical to evaluate each block of vineyards separately to adjust for these conditions. The factor would be 100% if cultivar yield equals the relevant purpose. If this block constantly performs, say 10% better than the average yield for that cultivar, the block factor then will be 110%, e.g. for cabernet sauvignon with quality objective 2 it will be:

\[
7.50 \text{ tons per hectare} \times 110\% = 8.25 \text{ tons per hectare}
\]

The age of the vine will have an effect on above as well, but more important is to determine a factor for new plantings for start of production. A vineyard only starts to produce in year 3 under normal conditions, but will only be in full production by year 5. This varies for different areas, but is easy to get from previous records.
The last factor we determine is the price point. There are several approaches possible and yes, the going rate of grapes on the open market is one, but the purpose of the grape as stipulated out by the proposal in terms of the product is what I propose as the relevant price. Remember the example of stock valuation I explained in the introduction.

The method of calculation is as follows: The total cost planned by the viticulturist for running the vineyards are fed into the model. It is then broken down into a cost per hectare. The hectare cost then gets divided by the yield per hectare for each cultivar. An example of such a result can be seen in Figure 2.18.
This however is only the start of the process. Let’s look at the level of understanding of all the claims, including the financial impact. No department is descriptive to any of the operations anymore, it becomes a balanced loop between each operational function, having input and feedback from each role player to fully understand the exact requirements and the exact expectations of the proposed product specs so that an offering that comply to the proposal, can be presented. This means that the proposal is the driver and everyone is working towards the offering that addresses the proposal. We therefore measure our grape price in relationship to its purpose and only when the total result, the offering, is in balance with the proposal, a viable system, will the individual result be approved. I refer to this method of costing as the “relevant method”, because it has the purpose the product as base. No product produced at any farm or winery is the same or are priced the same therefore it cannot be priced according to the going rate of bulk wine unless that is your purpose. It requires however a purpose that will be reflected by a set of factors e.g. price point per market, volume per market, sales period, packaging profile, etc. The factors not only bring some certainty to the uncertainty, but also create the goalposts for management to evaluate the performance all the time and if necessary adjust to cope with changes in any area.

By understanding the factors that is manageable and measurable within the vineyard it allows the viticulturist to properly plan his business. Firstly he understands what he has to achieve as an output. He is therefore in charge of his own financial result, because he can actually calculate what he can spend according to the output. This is done by measuring the yield per hectare, defining the cost by the yield and getting an end result as far as price per ton is concerned. This is valued according to the relevant method on the base of purpose of the product. Once the relevant value of the offering equals the expected cost of the proposal, we have a balanced offering which can be accepted as the objective of the viticulturist.

To support the process in the financial reporting the balance concept of the viable systems model of Stafford Beer is again applied. The actual cost per vineyard is recorded in an income and expense statement against the biological asset growth of the expected crop. (Interesting is that for biological asset valuation (IAS 41) the purpose of
the product is used as method to calculate the value.) We credit income with the biological asset value and debit the biological asset. Immediately we have a report with which we can manage our business. We can in fact do this per block. In the ideal world the income from the creation of the biological asset will equal the expenses occurred. At year end the actual yield will be measured against the total value of the biological asset and any differences will be written off in the income statement as a biological asset adjustment. That is full compliance to the resolution for biological assets.

2.6.2 The level of understanding of the product

Effect of extraction, maturation and wood on intended style and including packaging on cost.

The winery will draw the grapes from stock in theory, but is in fact the receival point for the grapes as it arrives from the vineyard. The grapes will be taken into the winery at the relevant price per ton as determined in the agreed plan. A set of factors will be designed in similar way as for the vineyard. The variables in the winery are even more than in the vineyard. Taking into account the intended style and quality of the product, components such as extraction, maturation, wood and the packaging of the product comes into play.

The first component in the winery production cycle is the understanding of liters extracted from the grapes. The common terminology is liter per ton. There is an industry norm for this, but it does differ from cellar to cellar as different theories are used, e.g. to get more colour a percentage of juice might be taken off, etc. It is also divided into quality levels. See Figure 2.19 for an example.

![Figure 2.19 Liter conversion](image)

Depending on the amount of time the product will take to produce and mature, a further loss of liters will occur. This research I have been working on since the early 1990's as there was always unexplained losses in the cellar. Interesting of this result at the end was the simplicity of the outcome. You can see this factor in Figure 2.20 and it represents the percentage lost per liter per month.
The final liter loss occurs at bottling and has a one percent loss factor.

This will give us a factor for volume and value loss each step of the process and will allow us to calculate each of these steps and then measuring them against the proposal. Again we will follow the loop until we found balance. It is also important to realize that if the vineyard changes something, it will affect the winery which will affect the offering. The reality of this is immense.

The next important set of factors in the wine making process is that of the product style. This would include things like the production period, amount of new wood, the blend and the quality of the juice and the packaging of the product.

Timeline: The first style related factor is the production period of the intended product. I call this the timeline of the product. The first date is that of harvest. The second of the completed bulk wine. The third date is when it is bottled and the fourth when it is packaged. The last date is when it is released to marketing ready for selling.

Wood: There are again different theories on how wood should be costed into wine; the approach I follow is in the same concept as the terms the winemaker talks in. If a wine batch has a, say 20% new wood content, the whole batch, every liter, will be debited at 20% of the average liter price of the allocated barrels. Normally a winery has enough second, third and older fill barrels, which the cost was already paid for, to fill up the balance of the batch. If you do not have enough barrels it will be treated as new barrels and the same method would apply.
An example of the calculation: In Figure 2.22 we have a cabernet sauvignon that will be allocated with a 20% new wood factor.

Cost of barrel A R 6 750 for 225 liters - used 6
Cost of barrel B R 7 250 for 225 liters — used 2
Total cost of barrels \((6750 \times 6 + 7250 \times 2)\) = R 55 000
Price per liter of new wood \((55000 - (225 \times 8))\) = R 30.56 per liter
Price per liter added to batch \((30.56 \times 20\%)\) = R 6.11 per liter

Blend: The next important style factor is the blend. This is important for quality and volume determination. The style is determined in the proposal and an example of the make up can be seen in Figure 2.23. The product is blended from quality 2 bulk wines.
Packaging: Packaging has the closest link to normal production process with a bill of materials possible. This bill of materials consists of all the items as displayed in Figure 2.24.

![Packaging costs](image)

The only outstanding items for packaging is labour and bottling costs. Many smaller wineries do not do their own bottling and outsource it. That is an easy sum to do. If it is an internal bottling line the most simplistic approach is to take the total budget for bottling, exclusive of any material and divide it by the number of bottles that will go over the bottling line.

Cellar cost: The final factor to determine is that of the cost of the cellar per liter. I have been exposed to several viewpoints on this and in the end I have designed a method that again reflects the relevant happenings of the cellar. I base the method on firstly a simple fact; only if it is in the cellar it contributes, if not, then no. This means a sauvignon blanc that takes three months to make will only draw costs for the three months it is in the cellar. On the other hand; a top end cabernet that takes 20 months to make will have up to three vintages in the cellar, all contributing towards the cost. An example of this can be seen in Figure 2.25. In addition to this I have allowed for a system of weighting where a product that requires more cellar time an additional weight can be loaded, e.g. wine in a tank carries a weight of 1, but wine in barrel a weight of 2 because of the additional time and effort spent on it.
By understanding the items that is manageable and measurable within the winery it allows the winemaker to properly plan his business. Firstly he understands what he has to achieve as an output. He is therefore in charge of his own financial result, because he can actually calculate what he can spend according to his output. This is done by a systems approach to cope with all the complexities, attain viability and co-evolve with the environment in which they are embedded. The factors set for liters extracted per ton, production losses over the process period and losses at bottling give us the base to work from as far as volume is concerned. This is all done within the scope of a quality connection. The cost of managing the cellar is then added through a well defined relevant costing method, allowing us to work with a thorough understanding of the processes. Managing the styles according to the proposal with the wood factor and blending factor give us great insight into the final product when we package and release it to the market. This is constantly valued according to the relevant method on the basis of purpose of the product. Once balance is achieved between the offering and the proposal, we have an approved budget.

The same principle for reporting applies for the winey. Stock in the form of bulk wine, product or juice as work in progress is produced and measured monthly in its own set of statements. As we have proposals for each part of the process we can measure progress accurately continuously.
2.6.3 The level of understanding of the market

The ability to improve the viability of the business in conjunction with the resources.

The level of understanding of the market is of crucial importance to assist in the understanding of the viability of each product. From my research I have determined the key components that need factors for business planning. It is crucial to understand that the factors are put together as part of the proposal, not as the offering. The role of the marketer or sales team is to develop the necessary plans to achieve these objectives within a specific budget.

Volume strategy: A proper understanding of your markets will improve the ability to determine the potential of your market and the viability there of. By setting yourself a target objective and yearly growth you can improve the viability of the business. This would be done in conjunction with the viticulturist for available volume and quality and the winemaker for capacity. Figure 2.26 presents such factors.

Figure 2.26 Volume strategy

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46,000 35,087 39,316 42,551 44,900 46,000 46,000 46,000
Market strategy: The next step in setting objectives is to allocate each product to a market. This will require a specific marketing strategy for each market.

![Figure 2.27 Market Strategy](image)

This logically leads to a price point per product per market.

![Figure 2.28 Pricing Strategy](image)

The price point must reflect the way of selling, in most of the wineries and in the four final case studies scenario, FOB (Free on Board).

Another factor that affects price point that is critical to have a factor for is the exchange rate.

![Figure 2.29 Exchange rate](image)
By understanding the components that is manageable and measurable in the marketing field allows the marketer to properly plan his business. Firstly they understand what has to be achieved as an output. A full understanding of price points and market allocation aligns the offering with the proposal.

Marketing expenses forms part of the normal income statement of the business and are measured against its budget determined by the objective in Loop 1.

2.7 Financial economics

It provides management with information to make decisions, adjust plans and align resources to constantly improve performance and profitability.

Figure 2.30 Answer Causal Loop Diagram

The level of understanding of the financial impact brings a further understanding to the theory. It brings a different accounting perspective with checks and balances through the whole process. In the vineyard, because of the understanding as described in section 1.4.5, the practices of the vineyard, winery and market can be measured in a financial accounting system. Progress can be constantly measured against a well defined set of standards. This allows management to make decisions, adjust plans and align resources to constantly improve performance and profitability.
2.7.1 Relationship between variables

Proficiency and efficiency enhances the relationship between variables

The relationship between the different values of understanding and the degree to which the offering matches the proposal is that of proficiency.

Proficiency is defined as the skillfulness in the command of fundamentals deriving from practice and familiarity; it includes such qualities as skill, ability, know-how, talent, facility, craft, expertise, competence, accomplishment, mastery, knack, aptitude, dexterity and expertness.

This will assist us in achieving the required offering to match the proposal.

An increase in the proficiency of each role player will increase the levels of understanding of each discipline leading to an improved execution of the offering.
The relationship between the different levels of understanding, directly related to the different role players is that of efficiency.

*Figure 2.32 Answer Causal Loop Diagram*

![Answer Causal Loop Diagram](image)

Good utilization of increased levels of understanding of the level of competency can potentially improve our ability to structure an offer at a higher level of effectiveness.

This concept refers to my understanding of expectations of the consumer. This would include issues like quality, value, presentation, branding, pricing and all other marketing related concepts such as: segmentation, targeting, positioning, needs, wants, demand, satisfaction, exchange, transactions, relationships and networks, marketing channels, supply chain, competition, the marketing environment and marketing programs.

This will have the following benefits for us:

- Increased competitiveness.
- Increased level of strategic alignment with global demands
- Increased level of management information to base decisions on.
- The better we understand the processes, the more effective we will differentiate.
How to develop the required management ability — the knowledge, skill, and talent to successfully manage the increased understanding of competitiveness;

How to develop the required management behaviour — the visible actions that contribute to the accomplishment of the management task

How to develop the predisposition to make the effort - the conscious application of mental and physical resources toward a particular end;

How to develop the predisposition to commit the required time - the period in which human capital is invested;

These are considered to be the four dimensions of human capital — the combination of these four elements produces effective management performance. As the pressure in the market increases through increased demands on all levels of the business we have to increase the depth of our understanding of the development of our human capital resources.

An increased level of effectiveness will allow you to constantly increase your ability to cope with the demands of the consumer represented by your proposal. Altruism is a concern or regard for the needs of others, both natural and moral; a devotion to the interests of others; brotherly kindness; opposed to egoism or selfishness and entirely without ulterior motive.

It speaks of a kind of greatness, unselfishness, a matureness that will give a team the ability to achieve synergy; their combined effect is greater than the sum of their individual effects.

This will assist us in consistently optimizing our resources, align our abilities and achieve our objectives. It also refers to the concept of systems thinking.

22 Davenport 1999
2.8 Putting it to the test. (Rationale)

Developing ideas into measurable targets and then into actionable knowledge.

The last few months I have spend on putting this model to the test. It was the most interesting period of my search for understanding. Working with the owners and role players within their business, extracting information, sometimes difficult to come by as the building of the proposal was in many cases a new concept. Experiencing the response when seeing the bigger picture (holism) for the first time was amazing, the first view normally did not even paint a great picture, but as the conversation and ideas began to flow amongst the people around the table and alternatives put to test, excitement kicked in. Developing ideas into measurable targets and then into actionable knowledge was greeted with so much enthusiasm, it sometimes made me uncomfortable, but then I reminded myself that it was their ideas, their actual and their resources, put together in a logical framework reflecting possible answers which they understood as such.

This real time experience was the best rationale as it engaged in the actual world of each business.

For clarity I will go through a typical process as I have experienced it. In all the scenarios the question, except in the case of Rustenberg that was many years ago and the reason I was appointed, was if it would give them a better understanding of the cost of their product. It was this need for understanding of their business that allowed me the opportunity to introduce the alternative approach.

I first had a meeting with all the senior role players, in my case studies it included the owner in every case, and in two it was completely family orientated, with brothers and wives fulfilling the management function. The discussions would start around costing, but I then would lead it to the understanding of the proposal concept and the importance of understanding the objectives of the business. By drawing on the knowledge of all the different role players in the discussion a draft proposal was drawn up.
I would follow this up with an in-depth meeting with each role player to determine the factors of each discipline. Drafting all these standards into an offering creates the first opportunity to get a big picture simulation of the business. The degree to which the offering matched the proposal at this first round was almost in every case two worlds apart, but a fantastic base to work from. Immediately the level of external environment thinking is enhanced and excelled into new levels of understanding.

A better understanding of their own business brings a new approach to the business objectives, improved contributions by the technical people due to a better understanding of the intent and a proposal that enhances the abilities of the business.

Working through the factors after the exposure to the holistic picture to fine tune the offering is done with a vastly increased understanding and a lot more focus of the intent. The bonus is that there is an understanding of the factors that drives the business e.g. costs of the products, but more, that it is related to the intent and therefore can be managed accordingly.

The amount of information that becomes available from this concept is mind-blowing. It justifies further study into this field.

Examples of such information is:

The supply of grapes against the demand for the grapes by quality.
From the above graph in Figure 2.35 a variety of observations can be made. Firstly an imbalance between demand and supply of this specific quality of grapes exists. This will require a change in the vineyard or a change in product volume or a buy-in strategy or a grape selling strategy. The different options can be tested by investigating each option against the objectives of the business and the viability of such an option.

In Figure 2.36 a single product is analyzed on its performance per market and against its objective. The orange bars reflect the percentage of total sales in that market. The brown line represents the cost of the product. The red line indicates the cost of the product plus marketing costs. The green line reflects the average return from all markets and the blue line the desired average price to obtain the set objective.

From this example it is clear that the Germany market, representing fifteen percent of volume, is done at a complete loss, R 4.21 below its actual cost. This is an exact sample of the effect of using the going industry bulk wine price as the value for stock valuation. The wrong value ends up in the cost, resulting in too low a sales price.

Another very important contribution is the format of the financial statements and specifically the income statement.
Wine sales will be all bottled and bulk wine sales, while Wine cost of sales will be the correct cost according to the methodology as described above. It represents the intent of the product made. Other sales could be grape sales and the appropriate cost thereof.

As described in the different section the relevant cost production variances would be shown on a separate line in the income statement, as we do here. Any variances from the factors will be reflected as an over or under recovery for grape (biological assets), winemaking and bottling. For each of these lines you will have a complete individual set of income and expense statements. The income in the case of the grape will be the actual yield at the relevant cost. In the winery it will be the bulk wine produced and for bottling the final product delivered. For grape the entry will be a debit to stock and a credit to biological assets. The winery and bottling will have a debit to stock and a credit to each income account. The net result of these departments will be displayed in the over or under recovery portion of your income statement. In a perfect world the net
result of each of these is nil. Imagine the possibilities now with setting targets for each manager with potential incentives. The current practice for production variances is to write it off against cost of sales.

Once you get beyond the impact of seeing your business in this simulated way, the real value for me lies in the ability to start playing the ‘what if’ scenario game. What if the exchange rate drops to this? What if I lift my price by 10%? What if I increase my yield by one ton per hectare? The options are amazing.

The ability to immediately see whether it could work, the effect on the cash flow (the red line in Figure 2.38 the production requirements, pretty much on every aspect of the business. It allows the management to become creative and test options in a save environment.

2.9 Closing the loop (Evaluation)

Actionable knowledge for management to enhance their decision making in their quest for viability and sustainability

The question that needed to be answered is how can we use principles from financial economics to improve business planning in the wine industry? It required a theory that could align the inner workings of the wine business whilst drawing on the technical skills of all role players, producing the type of information that will improve the level of actionable knowledge of management to enhance their decision making in their quest for viability and sustainability. In section 1.4 I step by step design exactly such a model and in section 1.5 support it with the case studies added in the addendums. A demonstration of the model can be arranged.
2.9.1 Relevance

A theory that will bring the relevant acumen that will allow the industry to be viable and sustainable.

The wine industry is currently facing some of its most demanding challenges. Apart from the current global economic crisis, the wine industry has additional challenges in itself. The South African wine industry has been very successful in major export markets over the last ten years. This however has been dramatically depleted by an extreme strengthening of the Rand. Evidence of this can be seen in the amount of wines currently available on ‘specials’ that was intended for the export market. The high level of fragmentation of the industry and thus the lack of big brands has further kept South Africa away from the global trends of consolidation creating shortage of foreign investment putting further pressure on the a lack of capital.” Rising cost with limited opportunity to increase price points in export markets has in fact started to eat into the profitability of wine producers.

Rabobank has done a SWOT analysis on South Africa\(^{24}\) and came up with the following results:

**Strengths** — wine characters due to ideal climates with different regions, wine styles with elements of both old and new world, attractive varieties, wines across all quality segments, flexibility

**Weaknesses** — highly fragmented, no big companies, no big brands, inconsistent, not enough red, image of cheap wines, capital scarce

**Opportunities** — consolidation, develop strong premium brands, access to markets, tourism

**Threats** — currency, global consolidation — exclusion, politics, oversupply of wine by other new world suppliers

An approach of designing a good strategic framework to draw on the level of skills of the industry while aligning the inner workings of the business will assist in meeting the industry’s challenges. Such a framework must reflect the key variables in all areas. Assuming that I have learned relevant theories and concepts, it makes sense to draw on these in developing the alternative approach theory. This argument assumes that such a theory will bring the relevant acumen that will allow the industry to be viable and sustainable.

\(^{23}\) Rabobank: The South African wine industry, 2006

\(^{24}\) Rabobank: The South African wine industry, 2006
2.9.2 Utility

Introducing the external and internal environment into the business planning framework brings an additional level of insight and understanding.

Drawing on the viable systems model of Stafford Beer I introduce the concept of an external and internal environment into the framework that brings an additional level of insight and understanding. Two loops are utilized in the process, one on the external environment and one on the internal environment.

The concepts of the alignment of strategic objectives, level of competency and the degree to which the offering matches the proposal are the areas identified to focus on in the external environment. The other loop is represented by the concepts of the levels of understanding of soil, climate and vine type, end product, market and financial impact — the internal environment.

When logically integrated into a framework they provide a base that can improve the level of viability and sustainability.

2.9.3 Validity

The financial economic approach improves the competitiveness and viability via an integrated business plan

The variables (Altruism, Effectiveness, Evaluation, Intent and Proficiency) contained in Figure 2.39 are well documented and supported by credible literature resources (credibility). The steps (Figure 2.9 — Figure 2.32) in the development of the causal loop diagram provide a chain of reasoning which logically connects the variables (conformability). The rationale detailed provides a plausible and valid basis for the strategic framework illustrated. Annexure enhances this credibility with the case studies done on the various wine businesses.

The financial economic approach is aimed at improving the competitiveness and viability of the wine industry by the development of an integrated business plan. It does
this by striving to increase the level of the understanding of data to improve their
decision making ability.

2.9.4 Ethics

**Ethics brings responsibility**

Ethics involves the application of fundamental ethical principles to this research. There
are many ethical issues to be taken into serious consideration for research. Firstly I have
secured the actual permission and interests of all those involved in the study. There is a
duty to protect the rights of people in the study as well as their privacy and sensitivity.
The confidentiality of those involved in the observation must be carried out, keeping
their anonymity and privacy secure where requested. The privilege of working with
these businesses comes with responsibility.

The following approach to ethics was followed. Honesty and integrity were at the core
of my work. The integrated business plan approach is exclusively my idea and all of its
factors and calculations are my own design. When referrals to other author’s work were
made, it was, as far as my knowledge is concerned, referenced every time.
3 Research Framework

Perception begins with our senses, both for the world and for wine.

Our perception of the world begins with our senses. It is what we see, feel, hear, smell and taste that lead us to generate empirical ideas representing the world around us within a mental framework relating new ideas to previous ones. It includes our experiences within the environment we live, our socio economic background and life.

In wine our perception begins with our senses, which generate our own perception of wine, within the framework of our exposure, experience and understanding.

Do our perceptions allow us to experience the world as it "really is?" Can we ever know another point of view in the way we know our own?

The science of perception is concerned with how events are observed and interpreted. In the philosophy of perception, critical realism \(^{25}\) is the theory that some of our sense-data (for example, those of primary qualities) can and do accurately represent external objects, properties, and events, while other of our sense-data (for example, those of secondary qualities and properties that produce sensations in observers, such as colour, taste, smell, and sound) do not accurately represent any external objects, properties, and events. It is based on our perceived idea. The ladder of inference \(^{26}\) developed by Chris Argyris in 1990 as a tool to understand the thinking process describes similar concept. The ladder of inference is a powerful tool for helping people to recognize their tendency to make claims about the world that they assume to be true (perception), and therefore expect others to accept without question. The pool of information at the bottom of the ladder represents all the information that could be relevant to this situation. The rungs of the ladder represent the various types of claims that can be made about information. Critical realism refers to any position that maintains that there exists an objectively knowable, mind-independent reality, whilst acknowledging the roles of perception and cognition.

Other descriptions of critical realism is that ontology (the study of being) is seen separate from epistemology (the theory of knowledge), which means that the world is `real', and exists independently of the idea we have of it i.e., things exists and act independently of our descriptions \(^{27}\) and "the world exists independently of the knowing of it," \(^{28}\)

\(^{27}\) [http://www.uk.geocities.com/balihar_sanghera/carrealismslides.html](http://www.uk.geocities.com/balihar_sanghera/carrealismslides.html)
\(^{28}\) [http://www.emporia.edu/socsci/philos/chp11.htm](http://www.emporia.edu/socsci/philos/chp11.htm)
Wine represents this theory amazingly well as it is embedded in the secondary qualities and properties that is all about colour, taste and smell. It enhances the mystique of wine as there is never an exact answer, so wine (quality and value) exists and act independently to our believe of what is 'true'.

A view of the world: Every theory of knowledge must also presuppose a theory of what the world is like (ontology) for knowledge to be possible. We therefore look for something to guide us. What we need is a framework to pull together our understanding of society, the world, our place in it and to support our decisions about our future. The Belgian philosopher Leo Apostel has devoted his life to the development of such a conceptual framework called a "world view". He, together with several other people, produced a book "World views, from fragmentation to integration" that list seven fundamental components of a world view.

A model of the world: It should allow us to understand how the world functions and how its structure. This includes everything about the world, including life. We are part of this world and a world view should answer: Who are we?

Explanation: The second component should explain the first one. This is very important and it should answer the question: Why is the world the way it is?

Futurology: Based on the pass it should give you probabilities of future developments. The question: Where are we going?

Values: Values are about morality or ethics. It also supplies a set of goals to guide our actions. What is good and what is evil?

Action: Its purpose is to help us to solve practical problems and how to implement them. How should we act?

Knowledge: Plans are developed from knowledge and information that we filter through theories and models. It should assist us in constructing more reliable models. What is true and what is false?

Building blocks: There is no question relating to this point, it is a reminder that we cannot developed a world view from scratch, but you build it from existing theories, models, concepts, guidelines and values.

A Practical example: The Princibia Cybernetica Project combined this "world view" with cybernetics, systems theory and theory of evolution to develop a cybernetic model of a world view as can be seen in Figure 3.1 A Cybernetic Model.

30 http://pespmcl.vub.ac.be/WORLVIEW.html
31 http://pespmcl.vub.ac.be/WORLVIEW.html
32 Copyright © 1992-2000 Principia Cybernetica
All rights reserved
The model takes the individual components of the world view and creates an interactive system. It is conceptualized as a control system which tries to achieve its goals or values by initiating the actions that will counterbalance the disturbances of the world. Disturbances can be described as the challenges of unpredictable change and growing complexity and how it affects the human psychology. We thus battle to find a clear vision of the future unless we follow a good framework to recognize the disturbances, act on them by building plans from knowledge based on existing theories.

Utilizing this model and theory in building a plan for my research framework provides good validity to the approach followed.
3.1 My Framework

A financial economic model to improve the knowledge of the business's inner workings

Drawing from the above "world view" I have constructed a graphical overview of my plan in Figure 3.2.

I will now take you on a step by step explanation through this plan and the reasoning behind it.

In Critical Realism we encounter a three level view namely the empirical world (information gained by means of observation, experience, or experiment), the actual world (what is on the surface; there's a possible world to represent each way, including the way the world actually is) and the real world (we can only know of real things under particular descriptions: i.e., reality is concept-dependent, not concept-determined)

In the world of wine we also deal with three levels namely:
Figure 3.3 Three levels

The consumer (what you observe),

Changing legislation, economic pressure and social issues etc. influences the empirical.

The channel to the consumer (what is on the surface; there is a possible wine the satisfy each palet)

Thousands of labels and brands in a multitude of styles and blends. Ever increasing, ever changing.

The producers from across the world (we can only know of real things under particular descriptions: i.e., reality is concept-dependent, not concept-determined)

What happens inside the producer's business (organization) is unknown to most of us. It is here we need to build knowledge or a theory, represented in a business plan to address the empirical.
I have to clarify at this point in time that you have to be clear as to the purpose of the study\textsuperscript{33}, the issues that must be illuminated and also the practices it could influence. In my scenario the objective is to determine if it is possible to build a business plan based on a financial economic model to improve the knowledge of the inner workings of the producer and to improve viability and profitability of the wine business.

The research will begin in the level of the actual with determining of recognized connections between observable occurrences, and to explain why such connections occur: e.g., yield size versus quality, brand value versus price, chardonnay versus cabernet, etc.

Critical realists adopt a retroductive strategy. Assumptions will be made of the existence of real structures and mechanisms, which if they existed, would explain the relationship between: e.g., yield size versus quality, brand value versus price, chardonnay versus cabernet, etc. (note: structures and mechanisms are unavailable to observation — i.e., we cannot see brand value or competitiveness, only the effects of them)

This will take us to the construction of knowledge and it is of utmost importance to follow a validated research methodology.

\textsuperscript{33} Grounded theory in management research, Karen Locke, 2001
Critical realism in economics: As my thesis has a strong economic approach I would like to include some reference in my plan to the critical realist's view on economics. Heterodox economists like Tony Lawson, Frederic Lee or Geoffrey Hodgson are trying to work the ideas of critical realism into economics, especially the dynamic idea of macro-micro interaction.

According to critical realist economists, the central aim of economic theory is to provide explanations in terms of hidden structures capable of producing or creating. This position combines beyond ordinary or common experience, thought or belief realism with a critique of mainstream economics. It argues that mainstream economics (i) relies excessively on deductivist methodology (Deductive reasoning is a logical process in which a conclusion drawn from a set of premises contains no more information than the premises taken collectively. All dogs are animals; this is a dog; therefore, this is an animal: The truth of the conclusion is dependent only on the method.) (ii) embraces an uncritical enthusiasm for formalism (strict adherence to), and (iii) believes in strong conditional predictions in economics despite repeated failures.

The world that mainstream economists study is the empirical world. But this world is "out of phase" (Lawson) with the underlying ontology of economic regularities. The mainstream view is thus a limited reality because empirical realists presume that the objects of inquiry are solely "empirical regularities" that is, objects and events at the level of the experienced.

The critical realist views the domain of real causal mechanisms as the appropriate object of economic science, whereas the positivist view is that the reality is exhausted in empirical, i.e. experienced reality. Tony Lawson argues that economics ought to embrace a "social ontology" to include the underlying causes of economic phenomena.
3.2 Building Knowledge

The methodology used for research was Grounded Theory

The methodology used in this paper is Grounded Theory (GT), a research theory developed by Glaser and Strauss (1967). Basically it means it is build from data. It is a research method that can be seen as operating almost in a reverse fashion to traditional research and at first may appear to be in contradiction of the scientific method. Rather than beginning by researching & developing a hypothesis, a variety of data collection methods are the first step.

Data could either be descriptive or relational. The specification of relationships among concepts is critical to the ability of a theory to offer an account of how things happen. 

The following summary on Grounded Theory was made from ©Academy of Management Journal 2006, Vol. 49, No. 4, 633-642 article on "What Grounded Theory is Not" by Roy Suddaby of the Alberta University on request of the editors of the journal.

**Grounded theory is not an excuse to ignore literature.** The researcher does not enter the field without any knowledge of prior research or knowledge of the field.

**Grounded theory is not a presentation of raw data.** A key element of grounded theory is identifying 'a slightly higher level of abstraction—higher than the data itself (Martin & Turner, 1983:147)

**Grounded Theory Is Not Theory Testing, Content Analysis, or Word Counts.** The purpose of grounded theory is not to make truth statements about reality, but to elicit

35 Grounded theory in management research, Karen Locke, 2001
fresh understandings about patterned relationships between social actors and how these relationships and interactions actively construct reality.

Grounded Theory Is Not Simply Routine Application of Formulaic Technique to Data. The key issue to remember here is that grounded theory is an interpretive process, not a logic-deductive one.

Grounded Theory Is Not Perfect. A healthy tension between methodologists and practitioners is desirable, but should avoid fundamentalist approach and evaluation of grounded theory.

Grounded Theory Is Not Easy. The researcher must engage in ongoing self-reflection to ensure that they take personal biases, world views and assumptions into account while collecting, interpreting and analyzing data. Because the somewhat artificial boundary between researcher and research subject is removed, the quality of the contact between researcher and empirical site and the quality of the research produced have a direct relationship. Grounded theory is an interpretive process that depends upon the sensitivity of a researcher to tacit elements of the data or meanings and connotations that may not be apparent from a mere superficial reading of denotative content. Many grounded theory researchers describe this interpretation as occurring subconsciously, as a result of their constant 'immersion' in the data. Because of this close and longstanding connection, the personality, experience, and character of a researcher become important components of the research process and should be made an explicit part of the analysis.

3.3 The Process

Data collection, assigning meaning and integrating categories

Conversational interviews have a distinct advantage of enabling the researcher to establish rapport with potential participants and therefore gain their cooperation. These interviews give the best response rates in survey research as they tend to be open-ended, giving opportunity to explain and understand specific scenarios better. It has less structured protocols (i.e., you may change the data collection strategy by adding, refining, or dropping methods or informants). It also allows you to clarify answers that are vague and when necessary, seek additional information; respondents may be interviewed several times to follow up on a particular issue, clarify concepts or check the reliability of data. In getting to the bottom of certain combinations of data, e.g. the cost of packaging material you need to give opportunity for the informant to collect the data. This could lead to several interviews, but are critical for quality and the level of detail required.

Disadvantages include impractical when large samples are involved as it is time consuming and expensive. 37

37 Leedy and Ormrod, 2001
http://people.uwec.edu/piercech/ResearchMethods/Datacollectionmethods/
Telephone interviews are less time consuming and less expensive and the researcher has ready access to anyone who has a telephone. Disadvantages are that the response rate is not as high as the face-to-face interview, but is considerably higher than a mailed questionnaire. In my research this method was not viable for the sensitivity of information and the quality of data was too critical.

Questionnaires (mailed or printed) are another alternative and can be sent to large groups, but has low response rates and is open to vague responses. It is not a very good method for the type of research I did.

Participant observation: Observing and recording well-defined events e.g. assisting a pressing of grapes in the cellar. This data collection method plays an important role in evaluation by providing information useful to understand the processes behind observed results and assess changes in people's behaviour. Another observation is to obtain relevant data from management information systems.

Recording these observances is normally done by field notes. Field notes allow the researcher to access the subject and record what they observe in a modest manner. However one major disadvantage is that field notes are recorded by an observer and are subject to (a) memory and (b) possibly, the conscious or unconscious bias of the observer. It is a very good method of checking whether data given is in line with the actual happening in the business.

This will take us to the next phase of grounded theory and most probably to the heart of grounded theory. The assignment of meaning through the activities of coding (naming) and comparing are of the fundamental operations. These practices follow the concept-indicator model of theory development (Glaser 1978). That is, concepts are developed that account for perceived patterns in sets of data. This was crucial in my research as the purpose was to design a general model that would work for any wine business and catch the key areas of importance.

Assigning meaning: From the data collected common meanings would be captured into conceptual categories. The key points are marked with a series of codes (also referred to as naming), which are extracted from the text. The codes are grouped into similar concepts, in order to make them more workable. Comparing occurs parallel with coding (naming) and helps to develop a common name. Three types of coding focus attention on the slightly different aspects of coding and comparing. These are open, axial and selective coding.

It also helps to clarify our perception of the data. One should continuously move between examination of data incidents and conceptualization and back to data incidents to constantly improve our understanding of the data. At the same time as data are compared for common meanings, they should also be compared for what is different. During this process the writing of memos can assist in capturing new ideas and thoughts and to better articulate the subject.

38 Grounded theory in management research, Karen Locke, 2001
Conceptual categories are finally formed from this process of coding, comparing and memoing, which are the basis for the creation of a theory, or a reverse engineered hypothesis.

**Integrating categories:** The aim here is to fully develop our conceptual categories as well as develop the conceptual scheme. This we do by comparing how the conceptual categories may be arranged to clarify the relationship between the categories and their properties. When the categories reach the point where subsequent data incidents result in no new coding activity regarding the category, its development will be complete. This is known as theoretical saturation.

A limiting process occurs at the level of the conceptual categories when it is integrated to commit to represent a particular story from the data. It assists in focusing on the relevant categories. The relationship between the categories can now be converted into propositions that can be quantified. A theory is born.

**Literature research:** Literature review is a systemic review of published work about the topic of the study. This is to validate the work done and to support the theory that emerged.

### 3.3.1 Motivating Grounded theory

**The emphasis falls on the close examination of empirical data.**

There are four main reasons why the chosen research design was felt to be the most appropriate way of achieving the research objectives. First the differentiating feature of grounded theory is that the emphasis falls on the close examination of empirical data before drawing on literature. By starting with the data rather than theories, there is less chance that the research outcomes will be theoretically removed from the needs of the subject under study. Not only is the intention to provide explanations of social phenomena, but also to provide insight to those engaged in the behaviour under investigation. Ideally, the primary concerns of social actors are identified and the strategies that can be employed to resolve these concerns are outlined.

By this systematic process it is possible to distinguish between the researcher’s own pre-understanding and genuinely new insights as revealed by the inductive research process.

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39 Glaser and Strauss, 1967  
40 Thompson, 1997  
41 Glaser and Strauss, 1967  
42 Glaser, 1992
Case study to support Grounded theory

The following extraction from Organizational knowledge leadership: a grounded theory approach C. Lakshman, Indian Institute of Management, Indore, India iterates the validity of the grounded theory approach.

The grounded theory approach has highlighted the role of leaders in information and knowledge management and its subsequent impact on organizational performance. By identifying the crucial role of top executive leaders in knowledge management, this study makes significant contributions to both the leadership and knowledge management literatures. Based on 37 in-depth interviews with the CEOs of various organizations, propositions with respect to the role and significance of information and knowledge management as a leader function and responsibility have been presented.

The contributions of this grounded theory study are enormous and of major significance to the field of leadership. The study answers calls of several sets of researchers for more longitudinal, processual, and qualitative approaches to the examination of leadership (Bryman et al., 1988; House and Aditya, 1997; Hunt and Ropo, 1995; Parry, 1998), especially as it relates to cutting edge concepts such as knowledge management. The study adds to the growing volume of literature that either identifies leadership as a key component of effective knowledge management (Bell De Tienne et al., 2004), or addresses the differing impacts of transactional and transformational leadership on managing knowledge at different levels of the organizational hierarchy (Bryant, 2003), in addition to the earlier attempts at examining leadership styles (Politis, 2001), and micro-level knowledge leadership (Viitala, 2004). Although early attempts in leadership research have identified the information role of general managers (Mintzberg, 1977), and the use of information in problem solving as a key leadership behaviour dimension (Fleishman et al., 1991), this study clearly identifies the role of leaders in managing information and managing knowledge in organizations, both internally for coordination purposes and externally as it is directed to customers. Such identification and explication of key leadership activities in knowledge management realms moves these literatures forward and makes key contributions to such examination and understanding of the real nature of leadership in the knowledge economy.
3.4 Meta-Synthesis Method for amalgamation of research documents

An explanatory theory or model which could explain the findings of a group of similar studies

Utilizing the grounded theory in a range of research projects requires a method to amalgamate them into one. The method that will be used is the Meta-synthesis method.

Stern and Harris (1985) were the first to use the phrase 'qualitative meta-synthesis' with reference to the amalgamation of a group of qualitative studies. Their aim was the development of an explanatory theory or model which could explain the findings of a group of similar qualitative studies. This highlights one of the key differences between this method and meta-analysis of quantitative studies. The latter aims to increase certainty in cause and effect conclusions in a particular area, while the former is more explanatory, seeking to understand and explain phenomena. In short Theta-synthesis enables in related qualitative studies the nuances, self-evident assumptions, and rich milieu of varying accounts to be exposed, described and explained in ways that brings fresh insights.

**Technique:** A compare and contrast exercise is undertaken with the rationale and consequence of each case explained. The process is not to do with the distilling out a core meaning or reducing down related categories so that they can be placed under an umbrella of some all-encompassing theory or explanation.

The first phase would be to complete a grid of key concepts from the papers. The purpose would be to identify homogeneity of categories, codes and themes and to note any disagreement. It is important to maintain the context as originally intended.

*Figure 3.7 Core Variable*

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43 Woman’s health and the self care paradox, P. Stern and C. Harris, 1985
44 Methodological issues in nursing research, D Walsh and S Downe, 2005
The next phase begins the translation of one's findings into the reciprocal translation. Sometimes this can be very straightforward, but at other times it could stand in opposition as a ‘refutational translation’.\textsuperscript{45} It is important to note that a qualitative translation rarely results in a complete state of agreement.

The final phase is to synthesize the translations to explain the more refined meanings, exploratory theories and new concepts. Clusters of metaphors become increasingly more refined and a consensus emerges as the core theme to explain how the whole is greater than the sum of the parts.

3.5 Values

Moral values are the standards of good and bad

Having a theory we now need to evaluate the value system we need. Moral values are the standards of good and bad, which govern an individual’s behaviour and choices. Individual’s morals may derive from a variety of influences such as society, government, religion or him or herself. When moral values derive from society and government they may change as the laws and morals of the society change due to necessity.

Moral values also derive from within one’s own self When discipline is applied to modify one’s behaviour, you gain the capacity within yourself to distinguish the right behaviour from the wrong behaviour. The choices that are made by an individual from childhood to adulthood are between forbidden and acceptable, kind or cruel, generous or selfish. A person may, under any given set of circumstances, decide to do what is

\textsuperscript{45} Meta-Ethnography: Synthesising Qualitative Studies. G. Noblit and R Hare, 1988
wrong. If this individual possesses moral values, going against them usually produces guilt.

Religion is another source of moral values. Most religions have built-in lists of do's and don'ts, a set of codes by which its adherents should live.

3.6 Action

Putting it into practice

Lastly, but most definitely not least, is the appropriate action that needs to be taken. It is the ultimate test of the theory developed, by putting it into practice within a given set of values. This action is base on your theory of your understanding of what is happening in the real world.

The understanding represents a basic social process (BSP) that emerged from the grounded theory and meta-synthesis processes.
4 Research Results

What am "I" the vineyard going to become

In wine our perception begins with our senses, which generate our own idea of wine, within the framework of our exposure, experience and understanding. More often than not, we think of wine only in the way of the winemaking process, but in fact there are a lot more to this legendary product than just the pleasure of drinking it.

The quest for building a framework for an integrated business plan took me on a different pathway at looking at the wine business. Determining the key areas of causality for the industry brought new insight into this business.

As part of this study I will explain one of the segments of research in detail while the other will be included in the addendums.

Winery basically consists of three key operational units.

(i) Viticulture
(ii) Wine making
(iii) Sales

Referring back to Section 1.4.2 of the viable systems model the above three all falls into primary production.

Perception: When we drink a glass of wine the average wine drinker seldom thinks of the effort and energy that goes into the vineyard. The science of perception is concerned with how events are observed and interpreted. We experience wine, not the grape. We experience the moment, not the lengthy process of production. We find however that some great tasters with fantastic experience can consistently draw wine back to its place of origin, the so called 'terr.-ir' as mentioned in the opening paragraph of this document. They can taste 'warm' and 'cold' climates, wood contents age and many other qualities most of us do not even think of as we are looking for our own perception of what tastes good for us.

Following our research framework from section 2 I will take you through the vineyard research to explain the results. Similar procedures were followed to define winemaking and sales.
A view of the vineyard (world): Every theory of knowledge must also presuppose a theory of what the world is like (ontology) for knowledge to be possible. 46 We therefore look for something to guide us. What we need is a framework to pull together our understanding of society, the world, our place in it and to support our decisions about our future. The Belgian philosopher Leo Apostel has devoted his life to the development of such a conceptual framework called a "world view". 47 He, together with several other people, produced a book "World views, from fragmentation to integration" that list seven fundamental components of a world view. 48 I have adapted this "world view" concept to a vineyard view.

A model of the vineyard: Who are we? It should allow us to understand how the vineyard functions and how it is structured. This includes everything about the vineyard. It is part of the end product (world). It indicates an understanding of what the purpose of the vineyard should be.

Explanation: Why is the world the way it is? The understanding of the vineyard is of such importance and thus requires an extremely skilled individual to manage.

Futurology: Where are we going? What am "I" the vineyard going to become. I attended a presentation by Philip Freese, a world renowned viticulturist, called "Tasting the Vineyard" in which he emphasizes this concept as a non-negotiable ideology for vineyard management 'Begin with the end in mind'.

Values: What is good and what is evil? Values are about morality or ethics. It also supplies a set of goals to guide our actions. Identifying the factors that makes the action relevant is critical.

Action: How should we act? Its purpose is to help us to solve practical problems and how to implement them. Understanding the intent, the structure and intrigues of the vineyard will help improve the understanding of the action to be taken.

Knowledge: What is true and what is false? Plans are developed from knowledge and information that we filter through theories and models. It should assist us in constructing more reliable models.

Building blocks: There is no question relating to this point, it is a reminder that we cannot developed a world view from scratch, but you build it from existing theories, models, concepts, guidelines and values. An amazingly amount of work has been done on the practical application of vineyard work. Use what is applicable.

47 http://pespmcl.vub.ac.be/WORLVIEW.html
48 http://pespmclvub.ac.be/WORLVIEW/html
4.1 My Framework

Developing my understanding of the drivers of the key management decision areas in the production of grapes

In the pursuit of developing my understanding of the drivers of the key management decision areas in the production of grapes for determining quality, value and cost, my concern is based on the concept of "Begin with the end in mind" ⁴⁹ and therefore the degree to which the offering (produced grape: quality, value, cost) matches the proposal (expected grape: quality, value, cost)

Initially I identified the drivers of the quality/value/cost of grapes firstly as the level of understanding of market demand, secondly the level of understanding of the sites contribution and the level of understanding of the vines contribution as resources and thirdly the operational issues; level of understanding of final product composition/quality, the level of understanding of extracting site contribution, the level of understanding of enhancing cultivar, level of understanding of managing climatic influence, and the level of understanding of impact on cost and capital.

The following causal loop diagram in Figure 4.1 Concern causal loop diagram portrays this concern.

⁴⁹ The 7 Habits of Highly Effective People, Stephen R. Covey,
I have to clarify at this point in time that you have to be clear as to the purpose of the study\textsuperscript{50}, the issues that must be illuminated and also the practices it could influence. In my scenario the objective is to determine if it is possible to build an economic model to improve the knowledge of the inner workings of the vineyard to improve viability and profitability of the wine business. The methodology used in this paper is Grounded Theory (GT), a research theory developed by Glaser and Strauss (1967). Basically it means it is build from data. It is a research method that can be seen as operating almost in a reverse fashion to traditional research and at first may appear to be in contradiction of the scientific method.

The research will begin in the level of the actual with determining of observable occurrences. It is the perception of the specialist on what happens in the vineyard that I want to capture. The following data collection methods were used.

\textsuperscript{50} Grounded theory in management research, Karen Locke, 2001
4.2 Building Knowledge

The methodology used for research was Grounded Theory

4.3 The Process

Data collection, assigning meaning and integrating categories

Conversational interview: Most of my research was done via conversational interviews. It has a distinct advantage to establish rapport with participants and to gain their cooperation. Giving opportunity to explain and understand specific scenarios better help a lot as the level of detailed data for the concept were critical. It also allows you to clarify answers that are vague and when necessary, seek additional information; respondents were interviewed several times to follow up on particular issues or to check the reliability of data. Disadvantages were that it was time consuming and expensive.

Participant observation: Observing and recording well-defined events e.g. recording receival of grapes in the cellar helped in the evaluation of data by providing information useful to understand the processes behind observed results. Another observation was to obtain relevant data from management information systems. Recording these observances was done by field notes. It is a very good method of checking whether data given is in line with the actual happening in the business.

Records: I draw a lot of information from records to determine what type of information would be recorded in the past as this would give an indication of importance. Record keeping in some fields was limited, but very valuable information was gathered in general. Examples of this would be yield, perceived quality, grape utilization, etc.

Data: The data gathered in this process needed to help me to identify the key variables that was visible in the actual world and could be measured to be managed. A vast amount of data on quality and how to achieve was available. Examples of this are: water (irrigation) availability, canopy management, vineyard site, trellising system, vine type, rootstock, pruning method, chemical approach, etc. Very few vineyards were
managed with a specific purpose for each block of vines in mind. In general the vineyards were managed to produce a certain acceptable quality level.

The level of frustration on the financial side, mainly due to the scarcity of funds in the budget, came out as a big disturbance for the managers. Costs in vineyards were mainly managed by limiting funds without a proper flow of information and understanding. In all the interviews the viticulturist had the technical knowledge of an understanding of expected quality and expected yield, but the application was mostly restricted to what was possible within the budget. The understanding of what the consumer was after was limited. This will take us to the construction of knowledge and it is of utmost importance to follow a validated research methodology.

The next phase of grounded theory and most probably the heart of grounded theory is the assignment of meaning through the activities of coding (naming) and comparing\(^{51}\). These practices follow the concept-indicator model of theory development (Glaser 1978). That is, concepts are developed that account for perceived patterns in sets of data. This was crucial in my research as the purpose was to design a general model that would work for any wine business and catch the key areas of importance.

Assigning meaning: From the data collected common meanings were captured into conceptual categories. The key points are marked with a series of codes (also referred to as naming), which were extracted from the text. The codes were grouped into similar concepts, in order to make them more workable. Comparing occurs parallel with coding (naming) and helps to develop a common name.

It helped to clarify the perception of the data. At the same time as data were compared for common meanings, they were compared for what is different. Conceptual categories are finally formed from this process of coding, comparing and memoing, which are the basis for the creation of a theory, or a reverse engineered hypothesis.

The key components of viticulture that was developed utilizing this framework is as follows. Certain basics were logical to define e.g. cultivar and block. These are visible and easily identifiable. In the philosophy of perception, critical realism\(^{52}\) is the theory that some of our sense-data (for example, those of primary qualities) can and do accurately represent external objects, properties, and events, while other of our sense-data (for example, those of secondary qualities and properties that produce sensations in observers, such as colour, taste, smell, and sound) do not accurately represent any

\(^{51}\) *Grounded theory in management research*, Karen Locke, 2001

external objects, properties, and events. It is based on our perceived idea. Examples of the secondary qualities are **yield**; drawn from data such as records, industry averages, site influence, pruning method, canopy management, etc. **Quality**; drawn from all the elements that needs to be managed to achieve it, e.g. water (irrigation) availability, canopy management, vineyard site, trellising system, rootstock, pruning method, chemical approach, etc. **Price**; drawn from the purpose or intent of the product (relevant costing) in contras with the practice of utilizing the average market price.

**Integrating categories:** The aim here was to fully develop our conceptual categories as well as develop the conceptual scheme. This was done by comparing how the conceptual categories may be arranged to clarify the relationship between the categories and their properties. When the categories reach the point where subsequent data incidents result in no new coding activity regarding the category, its development will be complete. This is known as theoretical saturation. A limiting process occurs at the level of the conceptual categories when it is integrated to commit to represent a particular story from the data. It assists in focusing on the relevant categories. The relationship between the categories can now be converted into propositions that can be quantified. A theory is born.

**Birth to a theory:** It became evident through observation and conversational interviews and then verified through literature research that the degree to which key variables in viticulture can be managed revolves firstly around the competency of the person and secondly around the three critical levels of understanding of end product (goal), vineyard (soil, climate and vine type) and financial impact.

By exploring the relationship between these four variables the level of competency of the viticulturist was identified as the core variable. This variable is recognized as core because it directly drives the decision making/managing of the vineyard to achieve the desired quality and value at the required price point. From this rationale the answer causal loop diagram Figure 4.4 Answer Causal Loop Diagram was developed, which is a reinforcing loop.

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In practice the level of understanding of the end product will be a combination of the levels of understanding of the market, assisted by the winemaker for style and quality and the viticulturist for the soil, climate and vine type. These are all direct levels of competency requirements of the role-players. It is at the level of understanding of the financial impact that I focus on to assist the competency level of these role players. By developing an integrated framework and utilizing the appropriate factors to make the business relevant to its environment based on what is observable in the real world, we can create a theory that can establish a simulation of possibilities, condensed into a business plan.
4.3.1 Motivating Grounded theory

**Provide insight to those engaged in the behaviour under investigation**

There are four main reasons why the chosen research design was felt to be the most appropriate way of achieving the research objectives. First the differentiating feature of grounded theory is that the emphasis falls on the close examination of empirical data before drawing on literature\(^54\). By starting with the data rather than theories, there is less chance that the research outcomes will be theoretically removed from the needs of the subject under study\(^55\). Not only is the intention to provide explanations of social phenomena, but also to provide insight to those engaged in the behaviour under investigation\(^56\). Ideally, the primary concerns of social actors, our marketers, viticulturists and wine makers, are identified and the strategies that can be employed to resolve these concerns are outlined\(^57\).

By this systematic process it is possible to distinguish between the researcher's own pre-understanding and genuinely new insights as revealed by the inductive research process.

4.4 Rationale

**How these arguments can be used in a practical context.**

Evaluating the set of arguments claimed in the Answer CLD (*Figure 4.4 Answer Causal Loop Diagram*), I need to provide a set of examples of how these arguments can be used in a practical context.

**Level of understanding of the end product**

We have designed a set of components from the research done of which quality, yield and price were key components. A set of required quality levels at specific costs are provided to the viticulturist via the relevant factors as part of the proposal. The achievement of the quality levels are dependant on the competency of the viticulturist who will have to manage the key elements in the vineyard to obtain the set quality via the composition of the grape berries at the time of harvest.

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\(^{54}\) Glaser and Strauss, 1967  
\(^{55}\) Thompson, 1997  
\(^{56}\) Glaser and Strauss, 1967  
\(^{57}\) Glaser, 1992
The request is for a pre-determined quality three product, not only for the next harvest, but for a 10 year period as it allows the viticulturist to put long term planning into place, e.g. planting vineyards, arranging contracts for sale of grapes, etc.

I do not deal with the technical aspects of quality in this paper, although revered to as background, as it is assumed the viticulturist and winemaker possesses that competency. The focus is on the information support to create an integrated overview.

The request will be accompanied with a price tag and ton per hectare indication as agreed between the viticulturist and the winemaker.

Source: Christalball

Level of understanding of the soil, climate and vine type
The knowledge of the vineyard with all the above elements is one of the most crucial aspects of the viticulturist’s portfolio. The competency of the viticulturist is drawn on here to identify each and every block in the vineyard according to its cultivar, soil, site, history and potential to identify its quality group. The specific block will then be managed according to its qualification or if needed reclassified and then be managed differently. An example of such a classification is showed below.

An inherent component of quality is tons yielded per hectare per cultivar. Such a list will be drawn from the history of the cultivar, the performance in South Africa and specifically in the area.

The more the level of understanding of the vineyard is, the finer the tuning of working towards the proposal can be. Because each block will perform different from the next a fine tuning per block can be done to simulate its true performance. It can also be earmarked for specific effort if required to get it up to standard.
From the information available to us we can start putting together a potential offering to the proposal.

Block per quality = planted area * ton per hectare * fine-tuning

The sum of the similar cultivar blocks per quality will give total potential yield per quality level of cultivar.
Level of understanding of the financial impact

The set of graphs below represent the first comparison between the demand and the supply of the Quality group.

Source: Christalball

As can be seen from the above graphs it would require careful planning to achieve the correct answer to deal with the variances. Possibilities are for example the sale of grapes.

Source: Christalball
These sales will be done at a specific market related price point and across all the qualities in this specific example a potential income from Grape sales was R2,808,360. The cost to produce it however was R3,140,257. A loss of R331,897.

It is clear from above that a different approach needs to be followed to achieve an optimum return, e.g. different classification and management of certain blocks to obtain an alternative answer.

**Degree to which the variables in viticulture can be managed**

From the above it is clear that with an informed approach, beginning with the end in mind with the correct competencies in place, the variables in viticulture can be managed towards an increasing degree of matching the proposal.
4.5 Evaluation

Putting the relevance, utility, validity and ethics to the test

Relevance: From the study an integrated information and business planning model was developed for the wine business. It brings the following benefits to the business. It enhances the role of the specialist for a synergistic answer in the business. Phenomenal data resources to draw from are established. It enhances the company strengths and addresses the weaknesses. A set of factors are developed as measurable goals to achieve objectives. The broader company expectations are achievable. The theory supplies a base for future competitive strategy. Manage and optimize key variables towards proposal.

Utility: From the study an integrated forecasting model for the wine business was developed. Emphasis was placed on optimizing the key variables in the vineyard to determine a standard to manage and optimize key variables, to measure performance, to create feedback and to forecast/simulate a potential future.

Validity: The grounded theory process was rigorously applied to gather and synthesize data. The methods used to collect data included conversational interviews, more than 10 years of experience in the industry as well as 8 years of model building to understand the process. Numerous field notes and memos were utilized to identify core concepts. These concepts were validated and substantiated by literature review. Having identified the relationship between the concepts and the emergence of the core variable and answer causal loop diagram was developed. The following were identified as threats to the validity of the research: Time of interviews: Harvest time and limited to 3 growing regions: Paarl, Stellenbosch, Franschhoek

Ethics: Permission was granted by all participants to conduct the study. Staff members interviewed was informed of the project prior to the commencement thereof.
5 Literature Review

The literature review was done to support my findings in this document in practice a business plan that aligns the inner workings of a wine business. I draw on the skills of all technical role players from an external environment perspective, building a business plan based on the principles of financial economics with advanced reporting infrastructure that improves the level of actionable knowledge of management and enhances their decision making in their quest for viability and sustainability in the internal environment.

I firstly draw on the generic framework of the Viable Systems Model of Stafford Beer to formulate my claims.

A viable system refers to itself. Or as Beer says, "its logic closes in on itself." This is why each and every viable system is aware of itself in some way, maintains a distinct identity and is able to repair itself. Each viable system is also defined by the important fact that some of its components, or "subsystems", are viable systems in their own right too. For example, while a subsidiary company is generally a viable system, its strategic business units will usually be viable systems too. And within those viable systems, a finer level of analysts will reveal more viable systems such as specific operations and individual people. And so on, even down to the individual cells that makes up each person. This recurrence of viable systems at different levels of analysis operates in the other direction too. For example while an organization such as a subsidiary is a viable system in its own right, the subsidiary also forms a part of a larger viable system, its parent organization. That organization in turn may form part of a larger viable system, such as a national economy.

So the viable system structures are found nested or recurring, one within the other. This insight of recursion is absolutely central to the viable systems model, and therefore must be kept in mind in making sense of what follows. Beer advises that when applying the VSM to a particular organization, which he calls "the system in focus" it is generally sufficient to consider the "system in focus" primarily in the context of the next level up and the next level down. One level of recursion up and one level of recursion down.

Applying this principle in my literature review my system in focus is business planning. One level up, looking at a world view, the parent level is defined as financial economics. One level down, the child level, is the environment we work in, the wine industry.

I will start with the parent level, financial economics.

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5.1 Need for Economic perspective

Primarily concerned with building models to derive testable or policy implications from acceptable assumptions

Wine business management falls into the social science arena. Economics is the social science that studies the choices that individuals, businesses, governments and societies make as they cope with scarcity and the incentives that influence and reconcile those choices.\(^{59}\)

Financial economics is the branch of economics concerned with "the allocation and deployment of economic resources, both spatially and across time, in an uncertain environment".\(^{60}\) I am almost convinced Robert Merton did his research in the wine industry as it describes the environment so real. It is additionally characterized by its "concentration on monetary activities", in which "money of one type or another is likely to appear on both sides of a trade". The questions within financial economics are typically framed in terms of "time, uncertainty, options and information".\(^{61}\)

In our scenario time will refer to the period where vineyard activities start for a specific vintage until the final product is sold in the future.

Uncertainty (or risk): Markets, yields, quality and price points are all uncertain. Options refer to decisions at a later time that will affect subsequent income streams.

Information: knowledge of the future can reduce the uncertainty associated with future sales.

Financial economics\(^{62}\) studies the interrelation of financial variables, such as prices, interest rates and market share, as opposed to those concerning the real economy. Financial economics concentrates on influences of real economic variables on financial ones, in contrast to pure finance.

Some of the main elements of study are: valuation - determination of the fair value of an asset; risk - identification of an appropriate discount rate; what cash flows it will produce; financial institutions and regulation etc.

Financial economics is primarily concerned with building models to derive testable or policy implications from acceptable assumptions. Some fundamental ideas in financial economics are portfolio theory, the Capital Asset Pricing Model. Portfolio theory studies how investors should balance risk and return when investing in many assets or securities. The Capital Asset Pricing Model describes how markets should set the prices of assets in relation to how risky they are. The Modigliani-Miller Theorem describes conditions under which corporate financing decisions are irrelevant for value, and acts as a benchmark for evaluating the effects of factors outside the model that do affect value.

\(^{59}\) Microeconomics, Michael Parkin, 8th edition, 2008
\(^{60}\) Robert C. Merton - Nobel Lecture
\(^{62}\) en.wikipedia.org/wiki/Financial_economics
Economics models are mainly employed to judge social welfare, but financial economists are more concerned with empirical predictions.

Financial economics supports my approach in all aspects of the objective of my theory. Let us take the definition of financial economics and break it down.

**Allocation and deployment of economic resources**

The components that you have to deal with in the wine business are multiple and complex. It starts in the vineyard and develops over time into a final product. The product is designed according to site contributors and market demands therefore every product is different. Even a specific cultivar made into a pure cultivar wine would differ from one farm to the next. The 'tarok' affect on wine making. You find in each vineyard differences and this all needs to be allocated and utilized to its optimum return. The vineyard is one of the key areas for resource control due to the high cost of land and labour resources.

In the winery it is critical during harvest time to have sufficient resources for receiving grapes. This is tank space, barrel requirements, pressing facilities and fermenting space.

**Spatially and across time**

The dimension wine takes on is amazing. To understand the volume of variances and possibilities in the process is mind-boggling, thus the intense use of very specialized people in the production process. One of the biggest challenges is normally a basic concept in costing namely the matching principle. Matching principle is a cornerstone of accrual accounting together with the revenue recognition principle. They both determine the accounting period, in which revenues and expenses are recognized. According to the principle, expenses are recognized when obligations are (1) incurred (usually when goods are transferred or services rendered, e.g. sold), and (2) offset against recognized revenues, which were generated from those expenses (related on the cause-and-effect basis), no matter when cash is paid out. We deal with products in this business that can take anything from 10 up to 60 months to complete. Matching the correct cost to the correct product is of essence. Working with the correct cost even more so.

**In an uncertain environment**

Again I want to mention that in this business we deal with "terroir" but also with the challenging world markets. Little needs to be said about the uncertainty of these markets. The concepts of financial economics supports model building and knowledge application to deal with these uncertainties. The more we can focus on what we have to do, the more we succeed.

http://www.answers.com/topic/matching-principle
5.1.1 The economic way of thinking

When we make a choice, we must select from the available alternatives.

Concept of optimization of resources in vineyards and winery.

*Microeconomics, Michael Parkin, 8th edition, 2008*

Everyday we are faced with scarcity for which we must make choices and when we do make a choice, we must select from the available alternatives. This choice can be seen as a tradeoff, an exchange of one thing for another. Globally governments now have to tradeoff billions of money units for financial stability in world markets.

Choices bring change. The what, how and for whom goods and services are produced, changes over time. Seeing choices as tradeoffs emphasizes the idea that to get something, we must give up something. What we give up is the cost of what we get. Economists refer to this as the opportunity cost.

The understanding and insight into choices and change brings validity to the work done. What the demands are and the consistent change thereof and how we have to deal with these concepts to maintain viability is a key concept in this book.

5.1.2 Strategic approach

*Managers at all levels of the business interact in planning and implementing*

Concept of inclusion of all role players in the strategic decision-making to enhance the value derived from the process.

*Strategic Management, Pearce and Robinson, 6th edition, 1997*

Using the strategic management approach managers at all levels of the business interact in planning and implementing. As a result, the behavioral consequences of strategic management are similar to those of participative decision making. Therefore, an accurate assessment of the impact of strategy formulation on business performance requires not only financial evaluation but also non-financial criteria.
5.1.3 Finding balance in the business

A management system that can channel the energies, abilities and specific knowledge held by people

The concept of channeling the energies and abilities of people towards the achievement of strategic goals are a central part of my theory.

The Balanced Scorecard, Robert S Kaplan and David P Norton

The Balanced Scorecard is more than just a measurement system, it is a management system that can channel the energies, abilities and specific knowledge held by people throughout the business toward achieving long-term strategic goals. It also serves as a system for testing, gaining feedback on and updating the business's strategy. The focus is on long term sustainability and profitability.

5.2 The need for Business planning

Planning is at the heart of good management

There are no specific literature on business planning for the wine industry.

5.2.1 The Essence of business planning

The understanding of your own business is of essence

The concept of an integrated approach and well defined business units.


Planning is at the heart of good management. It is such a vital part of management, a thorough understanding of planning approaches and documentation is important. A full understanding of the organization's situation is required to draw up a set of goals and objectives which can then determine implementation and communication. If a leader tries to lead without understanding of the situation, then he or she will usually be described as reckless or hopeless. As important it is to know where you are going, so important it is to understand where you are coming from, why you are where you are and what assets you have at your disposal.

All major human endeavours involve change and this is only achieved by the actions of people. If you want to improve your organization and lead it to making a greater contribution, then you must be able to produce a plan about why and how it is going to do so.
The understanding of your own business is of essence from this book. The structured approach further enhances a good business plan.

5.2.2 A structured way of thinking

Simplicity is rarely effective in the face of complexity

The concept of a holistic and balanced approach of my model.

**Systems thinking — Creative Holism for Managers, Michael C Jackson, The Business School, University of Hull**

Too often, today's managers are sold simple solutions to complex problems. But as many soon discover, simplicity is rarely effective in the face of complexity, change and diversity. Despite of apparent promise, quick fix answers fail because they are not holistic or creative enough. They focus on parts of the organization rather than the whole, take little account of interaction and pander to the notion that there is one best solution. They fail to recognize that optimizing the performance of one part may have consequences elsewhere that are damaging for the whole.

5.3 The need for understanding the inner workings

The complexities of working from raw agriculture to sophisticated world markets within one environment

The wine industry is probably one of the most underestimated fields of study as the euphoria of beautiful estates and wonderful moments around a bottle of wine overshadows the understanding of the underlying complexities of working from raw agriculture to sophisticated world markets within one environment. The technical skills requirement for this business has dominated the industry for a long time while business acumen has been neglected. I will look at the three main disciplines of the industry to supportive literature of the key factors that needs to be managed and competencies required.
5.3.1 Viticulture

Grapes provide the precursors to color formation, bitterness, and astringency in all wines

5.3.1.1 Technical and quality

The concept of understanding of the processes in the vineyard enhanced the key areas of business planning for the vineyard in relationship to yield and quality.

Phenolics in Grapes, Andrew L. Waterhouse and UC Davis Students of Natural Products of Wine, 2001

Some of the major components of wine that influence its sensory perception are acids, sugars, phenolics and flavour compounds. The objective measurement of the chemical composition and preliminary sensory assessments of the grapes are used to evaluate said components against set criteria of end product. In the following illustration it graphically demonstrates this.

Source: Australian Viticulture: Ripening berries — a critical issue, Dr. BG Coombe and T Clancy (Editor, Australian Viticulture), 2001. Illustrated by J Koutroumanidis and provided by Don Neel Practical Winery and Vineyard and Dr P Freese, 2008

It is in the understanding of these components and their contribution towards quality that the answer lays for achieving a given quality. To obtain a certain quality level a specific set of acid and sugar levels will be demanded. The types and levels of phenolic
compounds are directly related to the characteristic styles of red and white wines. As the ultimate phenol-supplier, grapes provide the precursors to color formation, bitterness, and astringency in all wines. An understanding of the phenol content in grapes and the influence of cultivar, vintage, climate, and cultivation conditions on this content is necessary for the asked quality of wine produced." The flavour compounds naturally will contribute towards a given quality based on concentration of juice based on berry size and volume.

5.3.1.2 Competencies required

This concept supports the important role man has to play in the processes. The role of the viticulturist is so important in the business. Developed in my theory is a two leveled approach of competency via the external eye to develop a proposal and operational to apply knowledge to produce an offering that matches that proposal.

Encyclopedia of Wines & Spirits, Alexis Lichine’s, Sixth Edition, 1985

Oenologists maintain four factors that determine the quality of wine: soil, climate, vine type and man.

5.3.1.3 Production

The concept of building a proposal focused on the demand and then to align resources to attain profitability and viability.

Phillip Freese, Tasting the Vineyard, 2008

Begin with the end in mind — Philip Freese in his presentation 'Tasting the Vineyard' emphasizes this concept as a non-negotiable ideology for vineyard management.

Phenolics in Grapes, Andrew L. Waterhouse and UC Davis Students of Natural Products of Wine, 2001
5.3.2 Winemaking

The skill to produce products of an agreed standard

5.3.2.1 Technical and Quality

The concept of producing wine according to a specific market demand and profile ‘agreed standard’ is key in my approach.

_Making Good Wine, Bryce Rankine, 2006_

This is one of the best books on the market to understand the technicalities involved in wine making. It takes you through a step by step approach on all aspects of wine making.

Quality control commences in the vineyard and concludes when the packaged wine reaches the consumer. Its purpose is to make the most efficient use of the available resources — grapes, facilities and people — to produce products of an agreed standard.

5.3.2.2 Business Competency requirements

The Concept of competency


References to the competency factor required in modern day business as required in the competency for the Winemaker.

5.3.2.3 Manufacturing principles: Broad base

The concept of a simulation model for the Wine Industry.

In the Wine Industry every decision taken on product has got a long-term affect. In the winery some products can mature up to 5 years or longer before being released into the market. Thus any model that is applied needs to look beyond this minimum to make any contribution.

_Eighteen "monozukuri-focused" assembly line design and visual factory management principles with Denso industrial examples. Paul G Ranky. Department of Industrial and Manufacturing Engineering and IT Departments._
References to principles in manufacturing from other industries that has an impact on the wine industry and specifically on this approach followed

The first principle in this journal refers to a design and simulation in the digital domain, before anything is built on the factory floor (winery), following monozukuri-focused (ecofriendly, sustainable, long-term increasing profit and quality) product, assembly system and factory design rules.

5.3.3 Wine Markets

Make things happen

There are three kinds of businesses: those who make things happen; those who watch things happen; and those who wonder what happened. — Anonymous.

The wine industry for a very long time has followed the last statement by making wine and then wants to sell it. It might have worked in the past but most definitely not any more. An old Chinese proverb says that if we do not change our direction, we are likely to end up where we are headed.

5.3.3.1 Market Pressure

The concept of producing according to market demand.

Rabobank, Winning Strategies in the wine industry, Arend Heijbroek, Rabobank 2006

The wine industry is facing one of its greatest challenges in recent times. This challenge has been brought about by a structural and long-term oversupply that has caused falling prices and margins all round the globe. In addition, the market pressure is translating into shifts in competitiveness.

To cope with this business planning becomes crucial and thus supports the need for the financial economic approach of this model.
5.3.3.2 Business Competency requirements

The Concept of competency


Without a suitable level of staff competency the understanding of the market is jeopardized. It supports the components of the causal loop.

**The Tipping Point — Malcolm Gladwell**

The understanding of how little things can make a big difference is the core principle of this book. It is critical for the marketer to understand this concept in the extremely competitive world. But it is also true for all of management at the external eye level. The combined ability of all the knowledge might create the tipping point.

5.3.3.3 Brand building

The concept of producing for a planned market requires brand building.

**Kotler on Marketing — How to create, win and dominate markets Philip Kotler**

The art of marketing is largely the art of brand building. When something is not a brand, it will probably be viewed as a commodity. Then price is what counts. When price is the only thing that counts, the only winner is the low-cost producer. But having just a brand name is not enough. What does the brand name mean? What associations, performances and expectations does it evoke? What degree of preference does it create? If it is only a brand name, then it fails to be a brand.

The model requires a building of a proposal. The proposal is dependant on the principles supported by Kotler on Marketing.
6 Conclusion and Evaluation

The development of the financial economic model in this paper is one of the highlights of my career to date. The significance of the model, called Christalball by my colleagues, is beyond questioning. There is to my knowledge no other model like this available in the wine industry.

What is the full spectrum of value that we get from this work?

6.1 Addressing the concern

The holistic view of the business and the openness of information allow everyone to be part of decision making.

Over the last couple of years the technical skills of the winemakers and viticulturists, being of such high world standards, has pushed the South African products into a level of world recognition. We often win awards for the fantastic quality and value we offer, but it does not reflect on the bottom line. On the other hand as described in section 1 under the situation, the technical skill expectation of accounting did not develop with the changes in the demands of the industry. The strong relationship that developed between owner and auditor over many years as both sectors was growing manifested a perception from the farmer that the skills required would be satisfied by the auditor. The changing environment of auditing however has moved there responsibilities to a focus of financial reporting while the farmer required an economic reporting. This imbalance is ignored because of a false expectation from the farmer and thus the lack of alternatives. A certain measure of an 'us and them' relationship has developed, think of the once a year audit meeting. Communication is restricted to a report on findings and financial reporting.

Because of the changed responsibility the financial reporting supplied by the auditors does not address the requirement of the farmer. This lack of the correct type of information leads to the wrong information utilized in decision making. In this document I show that by applying the principles of financial economics, a reporting structure in the form of a business plan can satisfy the requirement. This holistic approach and with proper information brings new insight into the wine business.

Initially it was not so easy to overcome the scenario of 'us and them'. The 'us' meaning the production teams and the 'them' whoever represented the accounting department. I remember comments in the beginning of the process of the 'tail wanting to wag the dog' but today in our business nothing happens without putting all options through the business plan.

The holistic view of the business and the openness of information allow everyone now to be part of the process and have eliminated the 'us' and 'them' and a new synergy has developed from this process.
From the initial `actual world' scenario as represented in the Concern causal loop diagram the Answer causal loop developed with an important change in approach to responsibility. Drawing from the Stafford Beer model of the viable systems model I elevated the skilled people out of the internal environment into an external environment, where they as a team had to build a proposal to address the challenges facing them. It required a mindset change from everyone, firstly to think differently and secondly to build trust, therefore the variable of altruism in loop 1. You need to have the right people on the bus. The increased synergy from this, you might first have to go through some painful changes as I have experienced, is phenomenal.

The concern for information is most definitely addressed when you can answer question upon question in a meeting and supply 'what if' answers. It was amazing to see the excitement building during a presentation and how new insights brought new initiatives to the surface. It is like having a sneak preview of the future. The intensity of discussion now is greatly enhanced as the affect of logical information brings a new level of knowledge that enhances creativity.

6.2 Answering the question

The allocation and deployment of economic resources, both spatially and across time, in an uncertain environment.

How can we use principles from financial economics to improve business planning in the wine industry?

Financial economics is the branch of economics concerned with "the allocation and deployment of economic resources, both spatially and across time, in an uncertain environment". It is additionally characterized by its "concentration on monetary activities", in which "money of one type or another is likely to appear on both sides of a trade". The questions within financial economics are typically framed in terms of "time, uncertainty, options and information".

My answer exactly addresses all these issues and more via the model. Starting with time: I developed what I call the 'time line' concept. (Figure 6.1)

---

66 Robert C. Merton - Nobel Lecture
For each product a harvest month is assigned based on the history or standard for the cultivar or cultivars used in the product. The time spent in the winery up to bulk wine stage. Second the period from bulk wine until bottling is done. The third period is up to packaging and then to the final release of the product. Lastly a sales period is allocated to represent the income stream of the product.

Uncertainty is reduced by knowledge. Bringing all the competencies from the role players in reduces uncertainty. This can include the complete distribution chain. Making them part of the planning process brings commitment from a massive base to the table. Having agents and distributors understanding your expectations, growth and objectives create a buy-in and therefore sustainability.

Each product has a specific volume plan per market. This would be formulated with all role players’ involvement.
Options allows for alternatives. By changing a set of data in one specific area will calculate the ripple effect across the whole model. This allows for easy 'what if' scenario planning. It creates amazing opportunity to maximize profitability.

The last key aspect of financial economics is information. I personally believe that the model at this stage supplies the wine business with the most comprehensive set of information available. For all the case studies the first accurate information ever compiled for some areas of the business, like the costing.

In *Figure 6.3* a graph of a specific products performance is shown. It reflects the percentage sold per market (orange bar), the average price (green line), production cost (brown line), production plus marketing (red line), ideal return (blue line) and the price point per market (black squares).

This is an exact example of bulk wine costed at net realizable value for financial purposes and that value then used to determine a price point two years later.
I further designed a specific set of accounts to measure each operation of the business. This allows for in time decision making. This is then summarized in a new layout representing the logic of the process.

**Figure 6.4 Income Forecast**

<table>
<thead>
<tr>
<th>WINES (PTY) LTD</th>
<th>FORECASTED INCOME STATEMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2010</strong></td>
<td><strong>2011</strong></td>
</tr>
<tr>
<td>Wine Sales</td>
<td>7,684,217</td>
</tr>
<tr>
<td>Wine Cost of Sales</td>
<td>5,813,070</td>
</tr>
<tr>
<td><strong>WINE GP</strong></td>
<td>2,251,147</td>
</tr>
<tr>
<td>Other Sales</td>
<td>585,582</td>
</tr>
<tr>
<td>Other cost</td>
<td>631,499</td>
</tr>
<tr>
<td><strong>OTHER GP</strong></td>
<td>42,917</td>
</tr>
<tr>
<td><strong>GROSS PROFIT</strong></td>
<td>2,200,229</td>
</tr>
<tr>
<td><strong>MARKETING EXPENSES</strong></td>
<td>1,752,505</td>
</tr>
<tr>
<td>Cellar door</td>
<td>252,930</td>
</tr>
<tr>
<td>National</td>
<td>1,499,575</td>
</tr>
<tr>
<td>International</td>
<td>-</td>
</tr>
<tr>
<td><strong>NET WINE INCOME</strong></td>
<td>455,725</td>
</tr>
<tr>
<td><strong>OTHER EXPENSES</strong></td>
<td>1,024,624</td>
</tr>
<tr>
<td>Admin</td>
<td>1,024,624</td>
</tr>
<tr>
<td><strong>NET PROFIT BEFORE PRODUCTION VARIANCES</strong></td>
<td>568,899</td>
</tr>
<tr>
<td><strong>OVER/(UNDER) RECOVERIES IN PRODUCTION</strong></td>
<td>0</td>
</tr>
<tr>
<td>Grape</td>
<td>0</td>
</tr>
<tr>
<td>Winemaking</td>
<td>-</td>
</tr>
<tr>
<td>Bottling</td>
<td>-</td>
</tr>
<tr>
<td><strong>EBIT</strong></td>
<td>568,899</td>
</tr>
<tr>
<td><strong>FINANCE CHARGES</strong></td>
<td>234,066</td>
</tr>
<tr>
<td>Interest</td>
<td>234,066</td>
</tr>
<tr>
<td><strong>EBT</strong></td>
<td>-602,965</td>
</tr>
</tbody>
</table>

Wine sales can be divided further into bottled and bulk wine sales and in each scenario the cost of sales will be the correct according to the methodology as described above. It represents the intent of the product made. Other sales could be grape sales and the appropriate cost thereof.

As described in the different section the relevant cost production variances would be shown on a separate line in the income statement, as we do here. Any variances from the factors will be reflected as an over or under recovery for grape (biological assets), winemaking and bottling. For each of these lines you will have a complete individual set of income and expense statements. The income in the case of the grape will be the
actual yield at the relevant cost. In the winery it will be the bulk wine produced and for bottling the final product delivered. For grape the entry will be a debit to stock and a credit to biological assets. The winery and bottling will have a debit to stock and a credit to each income account. The net result of these departments will be displayed in the over or under recovery portion of your income statement. In a perfect world the net result of each of these is nil. Imagine the possibilities now with setting targets for each manager with potential incentives. The current practice for production variances is to write it off against cost of sales.

Once you get beyond the impact of seeing your business in this simulated way, the real value for me lies in the ability to start playing the ‘what if’ scenario game. What if the exchange rate drops to this? What if I lift my price by 10%? What if I increase my yield by one ton per hectare? The options are amazing.

The ability to immediately see whether it could work, the effect on the cash flow (the red line in Figure 6.5), the production requirements, pretty much on every aspect of the business. It allows the management to become creative and test options in a save environment.

Further advantages are that each manager of a discipline has a complete set of his or her objectives. Uncertainty of what needs to be achieved is made certainty. This brings a new level of responsibility. Focus improves as the measurements to perform are in place. This could be further enhanced by an incentive program. Another advantage is the long term forecast it provides. Do I have enough cash or facilities, what the stock holding would be for a specific sales plan, etc.
6.3 What next?

The preferred business planner and financial economic accounting systems for the wine industry

The challenge is to take this model into the industry as the preferred business planner for the wine industry, adding additional value via introducing a methodology for accounting in a financial economic way. This could be achieved by supplying a level of information above anything else available and by getting the theory of the financial economic approach accepted as a general accounting practice for the wine industry.

I have already appointed a company to develop the model into a proper package (web based) that will be easy to use. The first small win for the accounting practice is that the auditors I deal with in my work have accepted the stock valuation method for our products and bulk wine this year. The full set of economic financials was also added as an addendum to our normal financial statements.

The next phase will be to establish a company to provide the financial economic solution to the industry, locally and abroad.
6.4 Recommendation for further study

Enhanced by developing an incentive model for remuneration.

There are three areas I have identified for potential further study on this document. Firstly, we now have an abundance of information on our hands that could be overwhelming if not properly presented. The key would be to simplify the results of this model into a series of well designed graphs and tables. This will allow the user to formulate decision quickly. Supporting the above would be a set of benchmarking information. This would be more accurate than any other as the participants will all use similar systems and approaches.

The second area of study would be to develop a set of financial economic ratios specific for the wine industry. This could be enhanced by developing an incentive model for remuneration.

The third area would be to develop models for market positioning to enhance this model. Due to the thousands and thousands of labels on the market and the fragmented profile of the industry, it is an area of great concern to each producer to position himself correctly.

6.5 Relevance

Rising cost with limited opportunity to increase price points

The wine industry is currently facing some of its most demanding challenges. Apart from the current global economic crisis, the wine industry has additional challenges in itself. The South African wine industry has been very successful in major export markets over the last ten years. This however has been dramatically depleted by an extreme strengthening of the Rand. Evidence of this can be seen in the amount of wines currently available on 'specials' that was intended for the export market. The high level of fragmentation of the industry and thus the lack of big brands has further kept South Africa away from the global trends of consolidation creating shortage of foreign investment putting further pressure on the a lack of capital. Rising cost with limited opportunity to increase price points in export markets, lack of positioning, has in fact started to eat into the profitability of wine producers. Adding on top of this the restricted information on hand, as described in this document, that is used to base decisions on to compete in the global market enhances the need for such a business plan model.

The SWOT analysis that Rabobank has done on South Africa further enforces the relevance due to the following results:

Strengths — wine characters due to ideal climates with different regions, wine styles with elements of both old and new world, attractive varieties, wines across all quality

68 Rabobank: The South African wine industry, 2006
69 Rabobank: The South African wine industry, 2006
segments, flexibility. This we enhance even further with the System 4 approach of planning.

Weaknesses — highly fragmented, no big companies, no big brands, inconsistent, not enough red, image of cheap wines, capital scarce. This we can contra with proper planning.

Opportunities — consolidation, develop strong premium brands, access to markets, tourism. This we can utilize by proper planning.

Threats — currency, global consolidation — exclusion, politics, oversupply of wine by other new world suppliers. The improved planning will help to gear ourselves better to cope with these threats and increase viability.

The approach of designing a good strategic framework to draw on the level of skills of the industry while aligning the inner workings of the business will assist in meeting the industry’s challenges. Such a framework must reflect the key variables in all areas.

Assuming that I have learned relevant theories and concepts, it makes sense to draw on these in developing the financial economic approach to business planning. This argument assumes that such a theory will bring the relevant acumen that will allow the industry to be viable and sustainable.

6.6 Utility

**Finding balance between the external environment and the internal environment to increase viability and profitability.**

Introducing the viable systems model of Stafford Beer into the framework brings an additional level of insight and understanding. Two loops are utilized in the process, one on the external environment and one on the internal environment.

*Figure 6.6 Answer Causal Loop Diagram*

The concepts of the alignment of strategic objectives, level of competency and the degree to which the offering matches the proposal are the areas identified to focus on the external environment. The other loop is represented by the concepts of the levels of understanding of soil, climate and vine type, end product, market and financial impact — the internal environment.

When logically integrated into a framework they provide a base that can improve the level of viability and sustainability. The framework, an integrated business plan, consists of all the relevant key decision areas that will, by defining the specific factors
for each business, result in a cascade of actionable information. Strategic objectives can be verbalized in measurable terms e.g. fifty percent gross profit, twenty percent marketing cost and fifteen percent net return. Building the above objectives into the proposal when determining the product set, volume, pricing and market positioning, directs the process for profitability and viability. When balance is found between these components, a proposal is formalized. The proposal will then be tested in the internal system for optimization of internal resources, execution and availability of external resources. This will include actions such as the System 4 function of the child system to determine availability of e.g. grapes. Once an offering that matches the proposal is reached, and this can mean changes to the original proposal as well, then a business plan is formalized. It is however a live document that must be kept up to date all the time as markets, exchange rates, availability, yield, etc. changes continuously. The utilities of this business plan are therefore the actual business plan, a forecasting model, a costing model, a progress measurement indicator, a production strategy, a buying utility for wood, bottles, corks, screw caps, labels, etc, a cash flow planner and many more.

6.7 Validity

Logical connection of the variables developed into an integrated business plan

The variables (Altruism, Effectiveness, Evaluation, Intent and Proficiency) contained in Figure 6.6 are well documented and supported by credible literature resources (credibility). The steps (Figure 2.9 — Figure 2.32) in the development of the causal loop diagram provide a chain of reasoning which logically connects the variables (conformability). The rationale detailed provides a plausible and valid basis for the strategic framework illustrated. Annexure A enhances this credibility with the exemplary case study done on the wine business. The financial economic approach is aimed at improving the competitiveness and viability of the wine industry by the development of an integrated business plan. It does this by striving to increase the level of the understanding of data to improve their decision making ability.
6.8 Ethics

The application of fundamental ethical principles

Ethics involves the application of fundamental ethical principles to this research. There are many ethical issues to be taken into serious consideration for research. Firstly I have secured the actual permission and interests of all those involved in the study. There is a duty to protect the rights of the people in the study as well as their privacy and sensitivity. The confidentiality of those involved in the observation must be respected, keeping their anonymity and privacy secure where requested. The privilege of working with these businesses comes with responsibility.

No discrimination against, race, sex or religion was committed.

The following approach to ethics was followed. Honesty and integrity were at the core of my work. The integrated business plan approach is exclusively my idea and all of its factors and calculations is my own design. When referrals to other authors work were made, it was as far as my knowledge is concerned, properly referenced.
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Appendix A

The Wine Business Simulation Model - An Integrated Approach: Viticulture

Pages 1 — 47
Wine Business Management

The Wine Business Simulation Model

An Integrated Approach

Area 1: Viticulture

Chris du Toit
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Abstract

Oenologists maintain four factors that determine the quality of wine: soil, climate, vine type and man. This is also what the French refers to as "terroir".

All these factors are interdependent, but in the end it is man who, based on analysis, guidelines, records, research and intent decides on what to plant where. *It is this decision that portrays an insight of the vision of the investor. It is the ability to see beyond the present reality, to create, to invent what does not yet exist, to become what not yet are. It gives us capacity to live out of our imagination instead of our memory.*

During my years in the wine industry (1999 -) it was observed that despite the fact that pressure on price points and quality kept increasing across the globe; very few vineyards were actually produced with a specific end in mind. It is only over the last few years that a drive for a specific vineyard for a specific product started. In a tasting academy held in January 2008 the world renowned viticulturist, Phillip Freese, presented a talk on "Tasting the Vineyard" in which he specifically emphasized the Steven Covey concept, "Begin with the end in mind". It thus still requires leading individuals to teach this concept.

In the pursuit of developing my understanding of the drivers of the key management decision areas in the production of grapes, my concern was based on the above concept of "Tasting the Vineyard" and specifically the degree to which the offering (produced grape: quality, volume, cost) matches the proposition (expected grape: quality, volume, cost)

The essential question which needs to be answered in light of the concern is "How can the key variables in viticulture be managed to enhance the offering to meet the proposition"

It became evident through observation and conversational interviews and then verified through literature research that the degree to which key variables in

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3 First Things First, Stephen R. Covey, A. Roger Merrill and Rebecca R. Merrill. 1999
3 Phillip Freese, Tasting the Vineyard, 2008
4 The 7 Habits of Highly Effective People, Stephen R. Covey,
viticulture can be managed revolves firstly around the competency of the people and secondly around the three critical levels of understanding of end product, vineyard (soil, climate and vine type) and financial impact.

By exploring the relationship between these four variables the level of competency of the management was identified as the core variable. This variable is recognized as core because it directly drives the decision making/managing of the vineyard to achieve the desired quality and volume at the required price point. From this rationale the answer CLD was developed, which is a reinforcing loop.

From the study an integrated forecasting model for the wine business was developed.

Y Emphasis was placed on optimizing the key variables in the vineyard to determine a standard
f To manage and optimize key variables
l To measure performance
t To create feedback
t To forecast/simulate a potential future

---

The grounded theory process was rigorously applied to gather and synthesize data. The methods used to collect data included conversational interviews, 9 years of experience in the industry as well as 8 years of model building to understand the process. Numerous field notes and memos were utilized to identify core concepts.

These concepts were validated and substantiated by literature review. Having identified the relationship between the concepts and the emergence of the core variable an answer CLD was developed.

The following were identified as threats to the validity of the research
- Time of interviews: Harvest time
- Limited to 3 growing regions: Paarl, Stellenbosch, Franschhoek

Discrimination did not occur each and every customer was approached.
Introduction and Overview

1.1 Situation

Oenologists maintain four factors that determine the quality of wine: soil, climate, vine type and man. These are also the factors that the French refers to as “terroir”.

A lot is said about "terroir" and many claims have been made about it and many more will be made. These factors are however interdependent and in the end it is man who, based on analysis, guidelines, records, research and intent decides on what to plant where and how to manage it. Stephen Covey in First things First says: "It is this decision that portrays an insight of the vision of the investor. It is the ability to see beyond the present reality, to create, to invent what does not yet exist, to become what not yet are. It gives us capacity to live out of our imagination instead of our memory ". It thus becomes a condition that one needs to have a specific understanding of the expected answer when you set out to achieve something.

However during my years in the wine industry (1999 -) it was observed that despite the fact that pressure on price points and quality kept increasing across the globe; very few vineyards were actually producing with a specific end in mind. It is only over the last few years that a drive for a specific vineyard for a specific product started, first with the fine wine producers and over the last three years with some of the bigger producers. In a tasting academy held in January 2008 the world renowned viticulturist, Phillip Freese, presented a talk on "Tasting the Vineyard" in which he specifically emphasized the Steven Covey concept, "Begin with the end in mind". It thus still requires leading individuals to teach this concept in the wine industry.

What are we really dealing with here. The industry comes with a lot of mystique and amazing estates with history and stories of note, but what is the bottom line that needs to be achieved. Firstly the grape is not the end product, it is the most critical component of the end product, yes, but it needs to comply with the requirements of that end product. The viticulturist therefore needs to produce according to a set of conditions to supply a certain volume of grapes at a specific quality level within a

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7 First Things First, Stephen R. Covey, A. Roger Merrill and Rebecca R. Merrill, 1999
8 Phillip Freese, Tasting the Vineyard, 2008
9 The 7 Habits of Highly Effective People, Stephen R. Covey,
specific price point. It is these three conditions: quality, volume and cost that will form the thread throughout my approach.

1.2 Concern

In the pursuit of developing my understanding of the drivers of the key management decision areas in the production of grapes for determining quality, volume and cost, my concern is based on the concept of "Begin with the end in mind" and therefore the degree to which the offering (produced grape: quality, volume, cost) matches the proposition (expected grape: quality, volume, cost)

Initially I identified the drivers of the quality/volume/cost of grapes firstly as the level of understanding of market demand, secondly the level of understanding of the sites contribution and the level of understanding of the vines contribution as resources and thirdly the operational issues; level of understanding of final product composition/quality, the level of understanding of extracting site contribution, the level of understanding of enhancing cultivar, level of understanding of managing climatic influence, and the level of understanding of impact on cost and capital.

* The 7 Habits of Highly Effective People, Stephen R. Covey,
The following CLD portraits this concern.

Degree to which offering matches’ hypothesis.

Degree to which key variables in viticulture can be managed.
1.3 Question

The essential question which needs to be answered in light of the concern is "How can the key variables in viticulture in relation to quality, volume and cost be managed to enhance the offering to meet the proposition"
**Answer**

According to BG Coombe and PG Iland (Viticulture Volume 1 - pp 210-211) the key determinent of wine quality is the composition of grape berries at the time of harvest.

It became evident through observation and conversational interviews and then verified through literature research that the degree to which key variables in viticulture can be managed revolves firstly around the competency of the person and secondly around the three critical levels of understanding of end product (goal), vineyard (soil, climate and vine type), and financial impact.

By exploring the relationship between these four variables the level of competency of the viticulturist was identified as the core variable. This variable is recognized as core because it directly drives the decision making/managing of the vineyard to achieve the desired quality and volume at the required price point. From this rationale the answer CLD was developed, which is a reinforcing loop.

The context of this answer CLD can be found in Annexure A to this document.

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1 Viticulture, Volume 1 — Resources, 2nd edition, Edited by PR Dry and BG Coombe, Winetitles

In practice the level of understanding of the end product will be an indicative from the market via the level of understanding from the winemaker. (Small win 2) The level of understanding of the soil, climate and vine type is a direct level of competency issue of the viticulturist. It is at the level of understanding of the financial impact that I focus to assist the competency level of the other levels of understanding.

### 1.5 Rationale

Drawing on the research information from Appendix B and the Answer CLD in Appendix A a practical example of how the increased levels of understanding can be utilized to form a synergistic model is illustrated in Part 5: Conclusion and Evaluation of this paper.

It takes all the manageable variables identified in the research, combine it with the expertise of the specialist and simulates potential scenario outcomes. By constant measuring of the potential result an answer where the offering meets the proposition can increasingly be achieved with higher profitability and viability.

### 1.6 Evaluation

#### 1.6.1 Relevance

From the study an integrated information and forecasting model was developed for the wine business.

- Identified the role of different specialist in their fields for a synergistic answer
- Create phenomenal data resources to draw from
- Create ideal conditions for all parties to base decisions on.
- Personal growth.
- Enhance the company strengths and address the weaknesses
- Address the broader company expectations
- Enhance the industry opportunities
- Supply base for future competitive strategy
- To manage and optimize key variables towards proposition
- To measure performance
- To create feedback
1.6.2 **Utility**

From the study an integrated forecasting model for the wine business was developed.

- Emphasis was placed on optimizing the key variables in the vineyard to determine a standard
- To manage and optimize key variables
- To measure performance
- To create feedback
  - To forecast/simulate a potential future

1.6.3 **Validity**

The grounded theory process was rigorously applied to gather and synthesize data. The methods used to collect data included conversational interviews, 9 years of experience in the industry as well as 8 years of model building to understand the process. Numerous field notes and memos were utilized to identify core concepts.

These concepts were validated and substantiated by literature review. Having identified the relationship between the concepts and the emergence of the core variable and answer CLD (Appendix A) was developed.

The following were identified as threats to the validity of the research
- Time of interviews: Harvest time
- Limited to 3 growing regions: Paarl, Stellenbosch, Franschhoek

1.6.4 **Ethics**

Permission was granted by all participants to conduct the study. Staff members interviewed was informed of the project prior to the commencement thereof
2 Literature Review

The literature review firstly supplies a background to the technical aspects of grape growing and specifically quality issues. These are the elements the viticulturist needs to manage. This leads to the competency requirement of the management involved. Thirdly I look at manufacturing outside of the grape growing industry to enhance the theory that emerged. Endorsing the theory with specific business principles brings additional validity. I close the review with supporting information on market pressure in this industry to support the need for this.

2.1 Technical background: Quality

References to technical issues concerning wine quality as background information to improve level of understanding of competencies required.

- Encyclopedia of Wines & Spirits, Alexis Lichine’s, Sixth Edition, 1985
  - Oenologists maintain four factors that determine the quality of wine: soil, climate, vine type and man.

- Phenolics in Grapes, Andrew L. Waterhouse and UC Davis Students of Natural Products of Wine, 2001
  - Some of the major components of wine that influences its sensory perception are acids, sugars, phenolics and flavour compounds. The objective measurement of the chemical composition and preliminary sensory assessments of the grapes are used to evaluate said components against set criteria of end product. In the following illustration it graphically demonstrates this.

- It is in the understanding of these components and there contribution towards quality that the answer lays for achieving a given quality. To obtain a certain quality level a specific set of acid and sugar levels will be demanded. The types and levels of phenolic compounds are directly related to the characteristic styles of red and white wines. As the ultimate phenol-supplier, grapes provide the precursors to color formation, bitterness, and astringency in all wines. An understanding of the phenol content in grapes and the influence of cultivar, vintage, climate, and cultivation conditions on this content is necessary for the asked quality of wine produced. The flavour compounds naturally will contribute towards a given quality based on concentration of juice based on berry size and volume.

12 Phenolics in Grapes, Andrew L. Waterhouse and UC Davis Students of Natural Products of Wine, 2001
2.2 Business Competency requirements

References to the competency factor required in modern day business as required in the competency for the viticulturist


2.3 Manufacturing principles: Broad base

References to principles in manufacturing from other industries that has an impact on the wine industry and specifically on this approach followed

- Eighteen "monozukuri-focused" assembly line design and visual factory management principles with Denso industrial examples. Paul G Ranky, Department of Industrial and Manufacturing Engineering and IT Departments, New Jersey Institute of Technology, Multi-lifecycle Engineering Research Center, Newark, New Jersey, USA. ¹⁴

  - The first principle in this journal refers to a design and simulation in the digital domain, before anything is built on the factory floor (vineyard),

¹⁴ www.emeraldinsight.com/0144-I 54.htm
following monozukuri-focused (ecofriendly, sustainable, long-term increasing profit and quality) product, assembly system and factory design rules. It supports the simulation model concept I suggest for the Wine Industry.

- Principle 3 refers to the long-term thinking, even if this means initially hard to accept financial terms. In the Wine Industry every decision taken on product has got a long-term affect. Especially in the vineyard as from the decision to plant to producing fruit is a minimum of three years. Thus any model that is applied needs to look beyond this minimum to make any contribution.

### 2.4 Business Principles

References to business principles in relation to business concept followed

- First Things First, Stephen R. Covey, A. Roger Merrill and Rebecca R. Merrill, 1999
  - It is this decision that portrays an insight of the vision of the investor. It is the ability to see beyond the present reality, to create, to invent what does not yet exist, to become what not yet are. It gives us capacity to live out of our imagination instead of our memory.
  - It is the above phrase that inspired me to create the simulation model to combine both imagination (probabilities) based on memory (factual information).

- The 7 Habits of Highly effective People, Steven R Covey
  - Begin with the end in mind
  - Synergy, the state where the whole is more than the sum of the parts
  - This well known statements of Steven R Covey summarizes the approach required

- Phillip Freese, Tasting the Vineyard, 2008
  - Begin with the end in mind — Philip Freese in his presentation Tasting the Vineyard emphasizes this concept as a non-negotiable ideology for vineyard management.

- The Viable Systems Model, Jon Walker, 1991
  - Focusing on the requirements in the metasystem
2.5 Market Pressure

Reality in the market place

- Rabobank, Winning Strategies in the wine industry, Arend Heijbroek, Rabobank 2006

  The wine industry is facing one of its greatest challenges in recent times. This challenge has been brought about by a structural and long-term oversupply that has caused falling prices and margins all round the globe. In addition, the market pressure is translating into shifts in competitiveness.
3.1 Research Methodology

The methodology used in this paper is Grounded Theory (GT). Basically it means it is build from data. On the Wikipedia website it describes it as follows: It is a research method that operates almost in a reverse fashion to traditional research and at first may appear to be in contradiction of the scientific method. Rather than beginning by researching & developing a hypothesis, a variety of data collection methods are the first step. From the data collected from this first step, the key points are marked with a series of codes, which are extracted from the text. The codes are grouped into similar concepts, in order to make them more workable. From these concepts categories are formed, which are the basis for the creation of a theory, or a reverse engineered hypothesis. This contradicts the traditional model of research, where the researcher chooses a theoretical framework, and only then applies this model to the studied phenomenon.

The following summary on Grounded Theory was made from ©Academy of Management Journal 2006, Vol. 49, No. 4, 633-642. “article on "What Grounded Theory is Not" by Roy Suddaby of the Alberta University on request of the editors of the journal.

Grounded theory is not an excuse to ignore literature

The researcher does not enter the field without any knowledge of prior research or knowledge of the field.

Grounded theory is not presentation of raw data

A key element of grounded theory is identifying 'a slightly higher level of abstraction—higher than the data itself (Martin & Turner, 1983:147)

Grounded Theory Is Not Theory Testing, Content Analysis, or Word Counts

The purpose of grounded theory is not to make truth statements about reality, but to elicit fresh understandings about patterned relationships between social actors and how these relationships and interactions actively construct reality.

15 http://en.wikipedia.org/wiki/Grounded_theory#cite_note-0#cite_note-0
Grounded Theory Is Not Simply Routine Application of Formulaic Technique to Data

The key issue to remember here is that grounded theory is an interpretive process, not a logico-deductive one.

Grounded Theory Is Not Perfect

A healthy tension between methodologists and practitioners is desirable, but should avoid fundamentalist approach and evaluation of grounded theory.

Grounded Theory Is Not Easy

The researcher must engage in ongoing self-reflection to ensure that they take personal biases, world views and assumptions into account while collecting, interpreting and analyzing data.

Because the somewhat artificial boundary between researcher and research subject is removed, the quality of the contact between researcher and empirical site and the quality of the research produced have a direct relationship.

Grounded theory is an interpretive process that depends upon the sensitivity of a researcher to tacit elements of the data or meanings and connotations that may not be apparent from a mere superficial reading of denotative content. Many grounded theory researchers describe this interpretation as occurring subconsciously, as a result of their constant 'immersion' in the data. Because of this close and longstanding connection, the personality, experience, and character of a researcher become important components of the research process and should be made an explicit part of the analysis.
3.2 **Data Collection Method**

- Conversational interview
- Participant observation
- Data analysis, coding & categorisation
- Literature research

3.3 **The GT Process**

Grounded theory begins with a research situation where your task as researcher is to understand what is happening there and how the players manage their roles. You will mostly do this through interviews, participant observation and conversation.

The main procedures of the methodology are:

- Data gathering: interviews and participant observation
- Data ordering: the data are analyzed using coding: a labeling concept that represents discrete happenings and other similarities
- Data analyses: categories are generated with the help of interpretive procedures.
- Theory development: selecting core categories, systematically relating it to other categories. Constant comparison is the heart of the process validating these relationships.
- Theory saturation: proceed until categories need no further refinement (marginal value of new data minimal)
- Literature comparison: compare the emerged theory with the extant literature and examine what is similar, what is different, and why

---

3.4 Grounded Theory results

An Overview of a Grounded Theory of Corporate Turnaround  

Through the process of open and axial coding in ATLAS/ti a number of concepts and categories were generated and developed. During selective coding (i.e., the integration of categories) the core category was defined and labeled 'recovery strategy content'. The other major categories were then related to this category. The content of appropriate recovery strategies were found to be contingent upon six sets of contextual factors: the causes of decline; the severity of the crisis; the attitude of stakeholders; industry characteristics; changes in the macroeconomic environment; and, the firm's historical strategy. The content of recovery strategies was usefully decomposed into operational level actions (management change, improved controls, reduction in production costs, investment in plant and machinery, decentralization, improved marketing, and restructuring finances) and strategic level actions (asset reduction/divestiture and product/market reorientation). An implementation or process dimension was also discovered. Successful actions to affect recovery fall into four distinct (but overlapping) stages (the management change stage, the retrenchment stage, the stabilization stage, and the growth stage). A diagrammatical depiction of this framework is given in the table below (see Pandit, 1995 for a fuller discussion).

19 http://www.nova.edu/ssss/QR/QR2-4/pandit.html#panditref
A Theoretical Framework of Corporate Turnaround

**CONTEXTUAL FACTORS**
- The causes of decline
- The severity of the crisis
- The attitude of the stakeholders
- Industry characteristics
- Changes in the macroeconomic environment
- The firm's historical strategy

**IMPLEMENTATION / PROCESS OF RECOVERY ACTIONS**
- Management change stage
  - Retrenchment stage
  - Stabilisation stage
  - Growth stage

**RECOVERY STRATEGY CONTENT**
- **Operational level:**
  - Management change
  - Improved controls
  - Reduction in production costs
  - Investment in plant and machinery
  - Decentralization
  - Improved marketing
  - Restructuring finances

- **Strategic level:**
  - Asset reduction/divestiture
  - Product-market reorientation

53 propositions linking the concepts and categories within the framework were generated and tested.
Table below lists a sample of five (see Pandit\textsuperscript{20}, 1995, pp. 277-278 for the full list).

A Sample of Propositions Generated by the Literature Case and Supported by the Cases of Fisons and BSC

<table>
<thead>
<tr>
<th>Proposition Generated by the Literature Case</th>
<th>Fisons</th>
<th>BSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>A sustained deterioration in performance is the result of both internal and external causes.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Successful turnaround firms are more severely affected in terms of financial performance in the downturn phase than unsuccessful recoveries.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>If the causes of decline are primarily internal in origin, actions that improve efficiency at the operational level should be emphasised to effect successful recovery.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>If the causes of decline are primarily external in origin, strategic level actions should be emphasised to effect successful recovery.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Appropriate recovery actions vary according to industry stage.</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

\textsuperscript{20} http://www.nova.edu/ssss/QR/QR2-4/pandit.html#panditref
4 Research Results

Based on the information as found in Appendix B I have divided the answers and notes into two scenarios. First a knowledge base required and secondly the application of this knowledge. I then divided the knowledge base into three areas of different specialist fields.

Knowledge of:
- Water (Irrigation) availability
- Canopy management
- Vineyard site
- History of vineyard performance
- Knowledge of vine type
- Trellising
- Expected quality
- Quality requirement
- Ton per hectare
- Vine type
- Hectares planted
- Availability of funds
- Budget
- Required quality vs. tonnage per hectare
- Must know the expectations from the market for a product
- Must know the quality elements of the product; Must understand the terroir of the vineyard
- Know the volume potential of site
- Must understand the objective of quality required for end product
- Quality guidelines per cultivar - national, region and developed per site (experience)
- PH, Acid. Sugar and Color
- Even ripening
- Recordkeeping of absolute importance
- Information systems critical - know on a daily basis cost component
- Must know what to aim for
- Financial implications
- Know how to budget
Knowledge further divided into three different areas of expertise

- **(Level of) Understanding of end product:**
  - Expected quality
  - Quality requirement
  - Must know the expectations from the market for a product
  - Must know the quality elements of the product
  - Must understand the objective of quality required for end product

- **(Level of) Understanding of soil, climate and vine type:**
  - Water(Irrigation) availability
  - Canopy management
  - Vineyard site
  - History of vineyard performance
  - Knowledge of vine type
  - Trellising
  - Ton per hectare
  - Vine type
  - Hectares planted
  - Must understand the terroir of the vineyard
  - Know the volume potential of site; Quality guidelines per cultivar - national, region and developed per site(experience)
  - PH, Acid, Sugar and Color
  - Even ripening;

- **(Level of) Understanding of financial impact:**
  - Recordkeeping of absolute importance
  - Information systems critical - know on a daily basis cost component
  - Must know what to aim for
  - Financial implications
  - Know how to budget
  - Know what effect is on finance of decisions made
Application of knowledge:

- Pruning approach
- Spray programs
- Timing of activities
- History of vineyard performance
- Trellising
- Condition at time of ripening
- Guided by area
- Canopy management
- Irrigation
- Quality requirement
- Ton per hectare
- Vine type
- Hectares planted
- Availability of funds
- Budget
- Required quality vs. tonnage per hectare
- Know-how of viticulturist
- Knowledge and experience to manage and balance the variances of climatic differences of the vintage with that of the product
- Must understand the terroir of the vineyard; Knowledge and experience to link the elements of the vineyard with that of the product
- Must understand the objective of quality required for end product
- Must know how to optimize yield with viticulture practices
- Individual needs a high level of skills
- Ability to achieve
- PH, Acid, Sugar and Color
- Even ripening
- Clear and well designed upfront plan that covers cost, quality and volume in relation with each vineyard
- Feedback over complete lifespan of product to evaluate certain actions taken—recordkeeping of absolute importance
- Timeline of info e.g. Pruning effect end result
- Know what effect is on finance of decisions made

Application of knowledge is directly linked to the competency\(^2\) of the manager or team of managers thus Level of competency of manager

5 Evaluation and Conclusion

Evaluating the set of arguments claimed in the Answer CLD (Appendix A), I need to provide a set of examples of how these arguments can be used in a practical context.

5.1 Level of understanding of the end product

From the model in small win 2 a set of required quality levels at specific costs are provided to the viticulturist. The determination of the quality levels are based on the competency of the viticulturist who will have to manage the key elements in the vineyard to obtain the set quality via the composition of the grape berries at the time of harvest. (See Level of understanding of vineyards 1.5.2). The viticulturist will also draw on the records of previous harvests from the vineyard.

The request is for a pre-determined quality 3 product, not only for the next harvest, but for a 10 year period as it allows the viticulturist to put long term planning into place, e.g. planting vineyards, arranging contracts for sale of grapes, etc.

do not deal with the technical aspects of quality in this paper, although revered to as background, as it is assumed the viticulturist and winemaker obtains that competency. The focus is on the information support to create an integrated overview.
5.2 Level of understanding the soil, climate and vine type

The knowledge of the vineyard with all the above components is one of the most crucial aspects of the viticulturist's portfolio. The competency of the viticulturist is drawn on here to identify each and every block in the vineyard according to its cultivar, soil, site, history and potential to identify its quality group. The specific block will then be managed according to its qualification or if needed reclassified and then be managed differently. An example of such a classification is showed below.
An inherent component of quality is tons yielded per hectare per cultivar. Such a list will be drawn from the history of the cultivar, the performance in South Africa and specifically in the area.

The more the level of understanding of the vineyard is, the finer the tuning of working towards the proposition can be. Because each block will perform different from the next a fine tuning per block can be done to simulate its true performance. It can also be earmarked for specific effort if required to get it up to standard.

Fine-tuning each block

<table>
<thead>
<tr>
<th>CULT ID</th>
<th>CULT CODE</th>
<th>OPTION</th>
<th>TON / HA QUALITY 1</th>
<th>TON / HA QUALITY 2</th>
<th>TON / HA QUALITY 3</th>
<th>TON / HA QUALITY 4</th>
<th>TON / HA QUALITY 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cu01</td>
<td>Grenache Blanca</td>
<td>3</td>
<td>5.00</td>
<td>10.00</td>
<td>12.00</td>
<td>15.00</td>
<td>20.00</td>
</tr>
<tr>
<td>Cu02</td>
<td>Cabernet Franc</td>
<td>3</td>
<td>5.00</td>
<td>10.00</td>
<td>12.00</td>
<td>15.00</td>
<td>20.00</td>
</tr>
<tr>
<td>Cu03</td>
<td>Cabernet Sauvignon</td>
<td>3</td>
<td>5.00</td>
<td>10.00</td>
<td>12.00</td>
<td>15.00</td>
<td>20.00</td>
</tr>
<tr>
<td>Cu04</td>
<td>Chardonnay</td>
<td>3</td>
<td>5.00</td>
<td>10.00</td>
<td>12.00</td>
<td>15.00</td>
<td>20.00</td>
</tr>
<tr>
<td>Cu05</td>
<td>Grenache</td>
<td>3</td>
<td>5.00</td>
<td>10.00</td>
<td>12.00</td>
<td>15.00</td>
<td>20.00</td>
</tr>
<tr>
<td>Cu06</td>
<td>Malbec</td>
<td>3</td>
<td>5.00</td>
<td>10.00</td>
<td>12.00</td>
<td>15.00</td>
<td>20.00</td>
</tr>
<tr>
<td>Cu07</td>
<td>Merlot</td>
<td>3</td>
<td>5.00</td>
<td>10.00</td>
<td>12.00</td>
<td>15.00</td>
<td>20.00</td>
</tr>
<tr>
<td>Cu08</td>
<td>Mourvedre</td>
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<td>5.00</td>
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</tr>
<tr>
<td>Cu09</td>
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<td>3</td>
<td>5.00</td>
<td>10.00</td>
<td>12.00</td>
<td>15.00</td>
<td>20.00</td>
</tr>
<tr>
<td>Cu10</td>
<td>Petit Verdot</td>
<td>3</td>
<td>5.00</td>
<td>10.00</td>
<td>12.00</td>
<td>15.00</td>
<td>20.00</td>
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<tr>
<td>Cu11</td>
<td>Roussane</td>
<td>3</td>
<td>5.00</td>
<td>10.00</td>
<td>12.00</td>
<td>15.00</td>
<td>20.00</td>
</tr>
<tr>
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<td>3</td>
<td>5.00</td>
<td>10.00</td>
<td>12.00</td>
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<td>20.00</td>
</tr>
<tr>
<td>Cu13</td>
<td>Semillon</td>
<td>3</td>
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<td>10.00</td>
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<td>Cu14</td>
<td>Shiraz</td>
<td>3</td>
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<td>10.00</td>
<td>12.00</td>
<td>15.00</td>
<td>20.00</td>
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<tr>
<td>Cu15</td>
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<td>3</td>
<td>5.00</td>
<td>10.00</td>
<td>12.00</td>
<td>15.00</td>
<td>20.00</td>
</tr>
</tbody>
</table>

Source: Christiaan Hall
From the information available to us we can start putting together a potential reply to the request.

Block per quality = planted area * ton per hectare * fine-tuning

Sum of the similar cultivar blocks per quality will give total potential yield per quality level of cultivar.

<table>
<thead>
<tr>
<th>HARVEST YEAR</th>
<th>TONNAGE PRODUCED PER QUALITY LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality 3</td>
<td></td>
</tr>
<tr>
<td>Grenache</td>
<td>18.07</td>
</tr>
<tr>
<td>Malbec</td>
<td></td>
</tr>
<tr>
<td>Merlot</td>
<td>2.56</td>
</tr>
<tr>
<td>Marsanne</td>
<td></td>
</tr>
<tr>
<td>Pinot Noir</td>
<td>7.44</td>
</tr>
<tr>
<td>Pinot Blanc</td>
<td></td>
</tr>
<tr>
<td>Sauvignon</td>
<td>95.01</td>
</tr>
<tr>
<td>Semillon</td>
<td>15.04</td>
</tr>
<tr>
<td>Shiraz</td>
<td>358.54</td>
</tr>
<tr>
<td>Viognier</td>
<td>84.58</td>
</tr>
</tbody>
</table>

Source: Christalhall
5.3 Level of understanding of the financial impact

The set of graphs below represent the first comparison between the demand and the supply of the Quality 3 group.

Source: Christalball

As can be seen from the above graphs it would require careful planning to achieve the correct answer to deal with the variances. Possibilities are:

Sale of grapes

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Grenache Blanc</td>
<td>4.41</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Chardonnay</td>
<td>-</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Malbec</td>
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</tr>
<tr>
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<tr>
<td>Pinot Noir</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Petit Verdot</td>
<td>7.41</td>
<td>7.64</td>
<td>7.64</td>
<td>7.64</td>
<td>7.64</td>
<td>7.64</td>
<td>7.64</td>
<td>7.64</td>
<td>7.64</td>
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</tr>
<tr>
<td>Roussanne</td>
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<td>-</td>
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<td>-</td>
</tr>
<tr>
<td>Sauvignon Blanc</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>-</td>
</tr>
<tr>
<td>Semillon</td>
<td>15.64</td>
<td>15.64</td>
<td>15.64</td>
<td>15.64</td>
<td>15.64</td>
<td>15.64</td>
<td>15.64</td>
<td>15.64</td>
<td>15.64</td>
<td>15.64</td>
</tr>
<tr>
<td>Shiraz</td>
<td>113.56</td>
<td>113.56</td>
<td>113.56</td>
<td>113.56</td>
<td>113.56</td>
<td>113.56</td>
<td>113.56</td>
<td>113.56</td>
<td>113.56</td>
<td>113.56</td>
</tr>
<tr>
<td>Viognier</td>
<td>16.46</td>
<td>17.01</td>
<td>17.01</td>
<td>17.01</td>
<td>17.01</td>
<td>17.01</td>
<td>17.01</td>
<td>17.01</td>
<td>17.01</td>
<td>17.01</td>
</tr>
<tr>
<td>Chardonnay Blanc</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>-</td>
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<td>-</td>
</tr>
</tbody>
</table>

Source: Christalball
These sales will be done at a specific market related price point and across all the Qualities in this specific example a potential income from Grape sales was R2,808,360. The cost to produce it however was R3,140,257. A loss of R331,897.

It is clear from above that a different approach needs to be followed to achieve an optimum return, e.g. different classification and management of certain blocks to obtain an alternative answer.

5.4 Degree to which the variables in viticulture can be managed

From the above it is clear that with an informed approach, beginning with the end in mind with the correct competencies in place, the variables in viticulture can be managed towards an increasing degree of matching the proposition.

5.5 Relevance

From the study an integrated information and forecasting model was developed for the wine business.

- Identified the role of different specialist in their fields for a synergistic answer
- Create phenomenal data resources to draw from
- Create ideal conditions for all parties to base decisions on.
- Personal growth.
- Enhance the company strengths and address the weaknesses
- Address the broader company expectations
- Enhance the industry opportunities
- Supply base for future competitive strategy
- To manage and optimize key variables towards proposition
- To measure performance
- To create feedback
5.6 Utility

From the study an integrated forecasting model for the wine business was developed.

Emphasis was placed on optimizing the key variables in the vineyard to determine a standard.
- To manage and optimize key variables
- To measure performance
  - To create feedback
  - To forecast/simulate a potential future

5.7 Validity

The grounded theory process was rigorously applied to gather and synthesize data. The methods used to collect data included conversational interviews, 9 years of experience in the industry as well as 8 years of model building to understand the process. Numerous field notes and memos were utilized to identify core concepts.

These concepts were validated and substantiated by literature review. Having identified the relationship between the concepts and the emergence of the core variable and answer CLD was developed.

The following were identified as threats to the validity of the research:
- Time of interviews: Harvest time
- Limited to 3 growing regions: Paarl, Stellenbosch, Franschhoek

5.8 Ethics

Permission was granted by all participants to conduct the study. Staff members interviewed was informed of the project prior to the commencement thereof.
The following process provides a basis for Answer CLD.

I need to develop a set of arguments that support the claims that the concepts illustrated in Fig. A are related in the way illustrated. I thus need to provide answers to the following questions raised by the question marks in Fig A:

1. In what way will an increase in the level of competency of the viticulturist increase the level of understanding of the end product, of the soil, climate and vine type and of the financial impact?

2. In what way will an increase in the level of understanding of the end product increase the level of understanding of the soil, climate and vine type and of the financial?

3. In what way will an increase in the level of understanding of the soil, climate and vine type increase the level of understanding of the end product and of the financial?

4. How will the increased financial understanding support the level of understanding of the end product and of the soil, climate and vine?

5. How will these increased levels of understanding affect the degree to which these variables can be managed?

This is done by a four step process that constructs a CLD that form the basis of the strategic options.
Step 1
In what way will an increase in the level of competency of the manager increase the level of understanding of the end product, of the soil, climate and vine type and of the financial impact?

A competency is defined as a capability or ability. It is a set of related but different sets of behaviour organized around an underlying construct, which we call the intent. The behaviours are alternate manifestations of the intent, as appropriate in various situations or times.22

Expertise
According to Richard E. Boyatzis in Competencies in the 21st century23 the three clusters of threshold competencies are:

1. expertise and experience
2. knowledge
3. an assortment of basic cognitive competencies

Putting the right team in place is one of the most important steps in anything you venture into as emphasised by Jim Collins in Good to Great24. The level of understanding of the end product is best understood by the winemaker, his area of expertise. The level of understanding of the soil, climate and vine type is best understood by the viticulturist, his area of expertise, experience and knowledge base. This logically means that a financial expert, with experience and knowledge needs to assist the winemaker and viticulturist in increasing the level of understanding in these three areas. An integrated approach would be required as it reaches across different areas of expertise.

---

24 Collins Jim, Good to Great, 2001
This will have the following benefits for us:

1. Increased competitiveness.
2. Increased level of strategic alignment with objective.
3. Increased level of management information to base decisions on.
4. The better we understand the processes, the more effective we will differentiate. This understanding will largely consist of:
   - How to develop the required management ability - the knowledge, skill, and talent to successfully manage the increased understanding of competitiveness;
   - How to develop the required management behaviour - the visible actions that contribute to the accomplishment of the management task;
   - How to develop the predisposition to make the effort - the conscious application of mental and physical resources toward a particular end;
   - How to develop the predisposition to commit the required time - the period in which human capital is invested.

These are considered to be the four dimensions of human capital - the combination of these four elements produces effective management performance (Davenport 1999). As the pressure in the market increases through increased demands on all levels of the business we have to increase the depth of our understanding of the development of our human capital resources.

An increased level of expertise will allow you to constantly increase your ability to cope with the demands of the levels of understanding of the soil, climate and vine type and of the understanding of the financial impact.

**Fig B illustrates the logic of this process.**
Step 2
An increased level of understanding of the end product will enhance your ability to obtain higher levels of **skilfulness** in your level of understanding of the soil, climate and vine type and of the understanding of the financial impact.

Skilfulness means to be cognitively skilful which requires an ability to exercise your skill and share it.

**Skilfulness**

In the journal, Skills and competency management by Mark Homer, he states that people skills are probably the most important foundation for a company because of the impact on every aspect of corporate process and, ultimately, profit.

1. Skill to understand company's intent
2. Skill to evaluate end product requirement
3. Skill to transfer understanding

The above will have the following benefits for us:
1. Increased effectiveness.
2. Increased level of viability.
3. Increased level of management information to base decisions on.

These abilities will enable you to develop your level of delivering a **skilfulness** that will increase **effectiveness** and **viability** in your levels of understanding of the soil, climate and vine type and of the understanding of the financial impact.

This logic is illustrated in Fig C.

---

## Step 3

Good utilisation of increased levels of understanding of the soil, climate and vine type can potentially improve your ability to operate at a higher level of **efficiency**.

This concept refers to my understanding of the importance of soil, climate and vine type in the process. This would include issues like technical skills, knowledge and experience.

### Efficiency

The soil, climate and vine type needs to be dealt with in great efficiency.

The most important issues of the viticulturist is:

1. Knowledge
2. Technical Application
3. Experience - understanding of past performance

Good utilisation of above will have the following benefits for you:

1. Improved levels understanding
2. Increased potential value
3. Increased commitment

The increased understanding of level of understanding of the soil, climate and vine type will lead to an increase in efficiency of operational ability as well as overall viability.

**Fig D** illustrates the logic of this process.

---

* Phenolics in Grapes, Andrew L. Waterhouse and UC Davis Students of Natural Products of Wine, 2001
* Phillip Freese, Tasting the Vineyard, 2008
Step 4
High level of understanding of the financial impact will increase the potential knowledge that will improve the viability of the business.

This concept refers to the combination of the knowledge of an organization - a synergic effect of experience and skills of all employees as well as information resources possessed by an organization.²⁸

Knowledge
1. Capturing and developing knowledge resources.
2. Consolidating and storing knowledge resources.
4. Knowledge resources verification (measure and evaluation) and updating.
5. Protecting knowledge resources.²⁹

This will have the following benefits:
1. Create phenomenal data resources to draw from
2. Create ideal conditions for all parties to base decisions on.
3. Personal growth.
4. Enhance the company strengths and address the weaknesses
5. Address the broader company expectations
6. Enhance the industry opportunities
7. Supply base for future competitive strategy

The company’s strengths and weaknesses are its profile of assets and skills relative to competitors, including financial resources, technological posture, brand identification, etc. The personal values of an organization are the motivations and needs of the key executives and other personnel who must implement the chosen strategy. Strengths and weaknesses combined with values determine the internal limits for a competitive strategy. The external limits are determined by its industry and broader environment. Industry opportunities and threats define the competitive environment, with its attendant risks and potential rewards. Societal expectations reflect the impact on the company of such things as government policy, social concerns, evolving mores, etc. These four factors must be considered before a company can develop a realistic and implementable set of goals and policies.  

Increased levels of understanding of financial impact will increase the potential knowledge that will enhance the potential competitiveness.

Fig E illustrates the logic of this process.
Step 5
An increased level of understanding of the end product, of the soil, climate and vine type and of the financial impact will facilitate the synergy that will improve the degree to which the variables in viticulture can be managed.

This concept refers to a synergic effect where the combined solutions are far better than what the individuals originally suggested.\textsuperscript{31}

Synergy

Synergy is the state in which the whole is more than the sum of the parts.\textsuperscript{32} Building on their strengths and compensating their weaknesses with the strengths of the others to increasingly manage the variables in viticulture. This will result in an increasing degree of achieving the offering that matches the proposition.

Fig. F illustrates the logic of this process.

\textsuperscript{31} Principle-centered leadership, Stephen R. Covey, 1999
\textsuperscript{32} The 7 habits of highly effective people, Stephen R, Covey
7 Appendix B

Research Question

Degree to which key variables in viticulture can be managed in relation to Quality, Volume and Cost

Interviews: JC Bekker(DGB), N Walters(Rustenberg), B Hobson(Morgenhof), C Todd(Backberg)

Question: What are the key elements in vineyard operations?

Quality
- Water(Irrigation) availability
- Pruning approach
- Canopy management
- Spray programs
- Timing of activities
- Vineyard site
- Know-how of viticulturist
- History of vineyard performance
- Knowledge of vine type
- Trellising; Condition at time of ripening
- Expected quality
- Canopy management: side shoots, leaf plucking, shoot positioning on quality
- Harvesting – machine vs. hand
- Lug boxes vs. bins
- Harvesting temperature
- SO₂ and ascorbic additions in the vineyards

Volume:
- Guided by area
- Pruning approach
- Canopy management
- Irrigation
- Quality requirement
- Ton per hectare
- Vine type
- Hectares planted
### Cost:
- Availability of funds
- Budget
- Required quality vs. tonnage per hectare

### Question: Key information required planning vineyard operations?

### Quality:
- Must know the expectations from the market for a product
- Must know the quality elements of the product
- Knowledge and experience to manage and balance the variances of climatic differences of the vintage with that of the product
- Must understand the terroir of the vineyard
- Knowledge and experience to link the elements of the vineyard with that of the product

### Volume:
- Know the volume potential of site
- Must understand the objective of quality required for end product
- Must know how to optimize yield with viticulture practices

### Cost:
- Must know the cost components of the product (Specific the grape portion)
- Knowledge to convert grape cost component into a detailed budget - labour, capital, products like sprays, etc
- Must have idea about financial implications of decisions

### Question: How do you manage this information to achieve required quality, volume and cost?

### Quality:
- Individual needs a high level of skills
- Quality guidelines per cultivar - national, region and developed per site (experience)
- PH, Acid, Sugar and Color
- Even ripening
- Clear and well designed upfront plan that covers cost, quality and volume in relation with each vineyard
- Feedback fed back over complete lifespan of product to evaluate certain actions taken - recordkeeping of absolute importance
<table>
<thead>
<tr>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Clear and well designed upfront plan that covers cost,</td>
</tr>
<tr>
<td>quality and volume in relation with each vineyard</td>
</tr>
<tr>
<td>• Communication - Timeline of info e.g. Pruning effect end</td>
</tr>
<tr>
<td>result:</td>
</tr>
<tr>
<td>• Feedback over complete lifespan of product to evaluate</td>
</tr>
<tr>
<td>certain actions taken-recordkeeping of absolute</td>
</tr>
<tr>
<td>importance</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cost:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Information systems critical - know on a daily basis cost</td>
</tr>
<tr>
<td>component</td>
</tr>
<tr>
<td>• must know what to aim for</td>
</tr>
<tr>
<td>• Know how to budget</td>
</tr>
<tr>
<td>• Know what effect is on finance of decisions made</td>
</tr>
</tbody>
</table>

| Question: Would the approach be different when you buy in  |
| grapes?                                                    |

<table>
<thead>
<tr>
<th>Quality:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provide producer with set of requirements i.e. sugar, pH,</td>
</tr>
<tr>
<td>acid, ton per hectare plus any other technical requirements</td>
</tr>
<tr>
<td>needed for end product</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ton per hectare requirements set</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cost:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Market related price</td>
</tr>
<tr>
<td>• Specific price</td>
</tr>
<tr>
<td>• Often have to buy A to get B</td>
</tr>
</tbody>
</table>
8 Appendix C

8.1 The Wine Business Simulation Model: An Integrated Approach

The wine business consists of a vast range of variables that has an effect all along the value chain from grape to wine to product. There are basically 3 areas of expertise in the chain namely: viticulture (grape growing), winemaking, product sales.

Linking this to the VSM\textsuperscript{33} model this all forms part of the Primary activities of System 1. These are very much specialist areas, especially viticulture and winemaking, where little reference to the Metasystem of Policy (System 5); Adaptation, Forward planning and Strategy (System 4); Internal regulation, Optimization and Synergy in their initial training, exists.

The ever changing market demands as seen in the Rabobank report "Winning Strategies in the wine industry, 2006; The wine industry is facing one of its greatest challenges in recent times. This challenge has been brought about by a structural and long-term oversupply that has caused falling prices and margins all round the globe. In addition, the market pressure is translating into shills in competitiveness." emphasizes the need for the metasystem in the wine business and thus the need for a supportive alternative financial model to assist these specialist in not only their fields of expertise, but also creating an overview of all the components of the business so that a change in one variable could be traced to see the effect on not only the next variable, but the overall business’s objectives and viability.

In this small win I will be focusing on Viticulture.

\textsuperscript{33} The Viable Systems Model, Jon Walker, 1991
\textsuperscript{34} Rabobank, Winning Strategies in the wine industry, Arend Heijbroek, Rabobank 2006
8.2 Goal of Research

To create a tool that can assist the wine business manager, viticulturist, winemaker and sales manager in:

- Determining Set of Targets within the bigger Business Objective
- Managing Key Variables
- Measuring Performance
- Creating Feedback

8.3 Conceptual Framework

My understanding of the drivers of the key management decision areas in the wine industry are based on my experience in the wine industry over the last 9 years, my studies at the Graduate School of Business, Cape Town and the University of Adelaide. The framework is specifically focused on the degree to which the offering (produced grape: quality, volume, cost) matches the proposition (expected grape: quality, volume, cost)

The following CLD portrays this concept:
8.4 Research Question

Firstly: What are the key variables in viticulture that can influence the outcome of?

- Quality
- Volume
- Cost

Secondly: Degree to which these variables in viticulture affects the outcome of:

- Quality
- Volume
- Cost

In relation to the proposition of:

- Quality
- Volume
- Cost

Checkpoint
8.5 Research Methodology

Method: Grounded Theory
  o Conversational Interviews
  o Participant observation
  o Data analysis, coding & categorisation

8.6 Issues of Validity

V Time of Research: Harvest time
  Limited to Stellenbosch, Paarl and Franschhoek region
  Researcher's current understanding of viticulture processes and variables
Appendix B

The Wine Business Simulation Model - An Integrated Approach: Winemaking

Pages 1 – 49
Wine Business Management

The Wine Business Simulation Model

An Integrated Approach

Area 2: Winemaking

Chris du Toit
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Abstract

Bryce Rankine in his book "Making Good Wine" states that good wine starts in the vineyard. This is echoed by many e.g. Coombe and PG Iland (Viticulture Volume 1 - pp 210-211) "the key deterrent of wine quality is the composition of grape berries at the time of harvest".

Contrary to this journalist loves to award winemakers all the credit and creates an environment of misunderstanding of the contribution made by other role players in the process. That there role is critical is absolutely undisputable, but it is far more a technical ability and competency issue than anything else. Bryce Rankine in Making Good Wine says: "As a winemaker one should be technically and academically competent, have a discriminating and trained pallet, an appreciation of wine types and quality, be able to manage staff, and have some knowledge of management, costing and marketing."

The Steven Covey concept, "Begin with the end in mind" is probably the most important concept in any winery. From the day the winemaker receives the grape he must have a very clear understanding of the intent of that batch of grapes. If not, it would hugely interfere with what that wine business stands for and what it is trying to achieve. It is a reality that conflict of interest often occurs here.

What are we really dealing with here? The industry comes with a lot of mystique and amazing estates with history and stories of note, but what is the bottom line that needs to be achieved. Simply - to produce products of an agreed standard (quality). The winemaker therefore needs to produce according to a set of conditions to supply a certain volume of wine at a specific quality level within a specific price point.

In the pursuit of developing my understanding of the drivers of the key management decision areas in the production of wine for determining quality, volume and cost, my concern is based on the concept of "Begin with the end in mind" and therefore the degree to which the offering (produced wine: quality, volume, cost) matches the proposition (expected wine: quality, volume, cost)

Making Good Wine, Brycee Rankine, 2006
\(^2\) Viticulture, Volume 1 — Resources. 2nd edition, Edited by PR Dry and BG Coombe, Winetitles
\(^3\) Making Good Wine, Bryce Rankine, 2006
\(^4\) Making Good Wine, Bryce Rankine, 2006
\(^5\) The 7 Habits of Highly Effective People, Stephen R. Covey,
\(^6\) The 7 Habits of Highly Effective People, Stephen R. Covey,
The essential question which needs to be answered in light of the concern is "How can the key variables in winemaking in relation to quality, volume and cost be managed to enhance the offering to meet the proposition"

It became evident through observation and conversational interviews and then verified through literature research that the degree to which key variables in wine making can be managed revolves firstly around the competency of the person and secondly around the three critical levels of understanding of style, wood application and maturation, of end product (goal) and financial impact (profitability).

By exploring the relationship between these four variables the level of competency of the winemaker was identified as the core variable. This variable is recognized as core because it directly drives the decision making/managing of the winery to achieve the desired quality and volume at the required price point. From this rationale the answer CLD was developed, which is a reinforcing loop.

Making Good Wine, Brycee Rankine, 2006
From the study an integrated forecasting model for the wine business was developed.

- Emphasis was placed on optimizing the key variables in the winery to determine a standard
  - To manage and optimize key variables
  - To measure performance
- To create feedback
  - To forecast/simulate a potential future

The grounded theory process was rigorously applied to gather and synthesize data. The methods used to collect data included conversational interviews, 9 years of experience in the industry as well as 8 years of model building to understand the process. Numerous field notes and memos were utilized to identify core concepts.

These concepts were validated and substantiated by literature review. Having identified the relationship between the concepts and the emergence of the core variable an answer CLD was developed.

The following were identified as threats to the validity of the research
- Limited time to test model
- Limited to 3 growing regions: Paarl, Stellenbosch, Franschhoek

Discrimination did not occur each and every customer was approached.
1 Introduction and Overview

1.1 Situation

Bryce Rankine in his book "Making Good Wine" states that good wine starts in the vineyard. This is echoed by many e.g. Coombe and PG Iland (Viticulture Volume 1 - pp 210-211) "the key determent of wine quality is the composition of grape berries at the time of harvest".

Contrary to this journalist loves to award winemakers all the credit and creates an environment of misunderstanding of the contribution made by other role players in the process. That role is critical is absolutely undisputable, but it is far more a technical ability and competency issue than anything else. Bryce Rankine in Making Good Wine says:" As an winemaker one should be technically and academically competent, have a discriminating and trained pallet, an appreciation of wine types and quality, be able to manage staff and have some knowledge of management, costing and marketing."

The Steven Covey concept, "Begin with the end in mind", is probably the most important concept in any winery. From the day the winemaker receives the grape he must have a very clear understanding of the intent of that batch of grapes. If not, it would hugely interfere with what that wine business stands for and what it is trying to achieve. It is a reality that conflict of interest often occurs here.

What are we really dealing with here? The industry comes with a lot of mystique and amazing estates with history and stories of note, but what is the bottom line that needs to be achieved. Simply - to produce products of an agreed standard (quality). The winemaker therefore needs to produce according to a set of conditions to supply a certain volume of wine at a specific quality level within a specific price point. It is these three conditions: quality, volume and cost that will form the thread throughout my approach.

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9 Making Good Wine, Bryce Rankine, 2006
10 Viticulture, Volume 1 — Resources, 2' edition, Edited by PR Dry and BG Coombe, Winetitles
11 Making Good Wine, Bryce Rankine, 2006
12 Making Good Wine, Bryce Rankine, 2006
13 The 7 Habits of Highly Effective People, Stephen R. Covey,
1.2 Concern

In the pursuit of developing my understanding of the drivers of the key management decision areas in the production of wine for determining quality, volume and cost, my concern is based on the concept of "Begin with the end in mind" and therefore the degree to which the offering (produced wine: quality, volume, cost) matches the proposition (expected wine: quality, volume, cost)

Initially I identified the drivers of the quality/volume/cost of wine firstly as the level of understanding of market demand, secondly as the level of winemaker's intention with brand value contribution and thirdly the operational issues; level of understanding of style, the level of understanding of final product composition/quality, the level of understanding of target market, level of understanding of price point, and the level of understanding of impact on cost and capital.

\[\text{The 7 Habits of Highly Effective People, Stephen R. Covey.}\]
The following CLD portrays this concern.

Conceputational Framework – Area 2

- Level of understanding of market demand
- Level of brand value
- Level of winemakers objective
- Level of understanding of final product composition/quality
- Level of understanding of price point
- Level of understanding of impact on cost/capital
- Alignment of strategic objective
- Degree of stylistic contribution
- Degree of understanding of target market
- Degree to which offering matches proposition
- Degree to which key variables in wine making can be managed
1.3 Question

The essential question which needs to be answered in light of the concern is "How can the key variables in winemaking in relation to quality, volume and cost be managed to enhance the offering to meet the proposition"

1.4 Answer

Bryce Rankine in his book "Making Good Wine" states that good wine starts in the vineyard. This is echoed by many e.g. Coombe and PG Iland (Viticulture Volume 1 - pp 210-211) the key determent of wine quality is the composition of grape berries at the time of harvest. The winemaker is thus very dependent on the viticulturist for what he can do. It is extremely difficult and costly to improve quality in the winery, it is far more critical to enhance quality in the winery. This can be achieved by the chosen style, wood application and maturation.

It became evident through observation and conversational interviews and then verified through literature research that the degree to which key variables in wine

---

1 Making Good Wine, Brycee Rankine, 2006

2 Viticulture, Volume 1 — Resources, 2nd edition, Edited by PR Dry and BG Coombe, Winetitles
making can be managed revolves firstly around the competency of the person 17 and secondly around the three critical levels of understanding of style, wood application and maturation, of end product (goal) and financial impact.

By exploring the relationship between these four variables the level of competency of the winemaker was identified as the core variable. This variable is recognized as core because it directly drives the decision making/managing of the winery 18 to achieve the desired quality and volume at the required price point. From this rationale the answer CLD was developed, which is a reinforcing loop.

The context of this answer CLD can be found in Annexure A to this document.

In practice the level of understanding of the end product will be an indicative from the market via the level of understanding from the winemaker. (Small win 2) The level of understanding of the style, wood application and maturation is a direct level of competency issue of the winemaker. It is at the level of understanding of the financial impact that I focus to assist the competency level of the other levels of understanding.

18 Making Good Wine, Bryceee Rankine, 2006
1.5 **Rationale**

Drawing on the research information from Appendix B and the Answer CLD in Appendix A a practical example of how the increased levels of understanding can be utilized to form a synergistic model is illustrated in Part 5: Conclusion and Evaluation of this paper.

It takes all the manageable variables identified in the research, combine it with the expertise of the specialist and simulates potential scenario outcomes. By constant measuring of the potential result an answer where the offering meets the proposition can increasingly be achieved with higher profitability and viability.

1.6 **Evaluation**

1.6.1 **Relevance**

From the study an integrated information and forecasting model was developed for the wine business.

- Identified the role of different specialist in their fields for a synergistic answer
- Create phenomenal data resources to draw from
- Create ideal conditions for all parties to base decisions on.
- Personal growth.
- Enhance the company strengths and address the weaknesses
- Address the broader company expectations
- Enhance the industry opportunities
- Supply base for future competitive strategy
- To manage and optimize key variables towards proposition
- To measure performance
- To create feedback

1.6.2 **Utility**

From the study an integrated forecasting model for the wine business was developed.

Emphasis was placed on optimizing the key variables in the winery to determine a standard
t To manage and optimize key variables
t To measure performance
 t To create feedback
 t To forecast/simulate a potential future

1.6.3 Validity

The grounded theory process was rigorously applied to gather and synthesize data. The methods used to collect data included conversational interviews, 9 years of experience in the industry as well as 8 years of model building to understand the process. Numerous field notes and memos were utilized to identify core concepts.

These concepts were validated and substantiated by literature review. Having identified the relationship between the concepts and the emergence of the core variable and answer CLD (Appendix A) was developed.

The following were identified as threats to the validity of the research
• Limited time for testing of model
• Limited to 3 growing regions: Paarl, Stellenbosch, Franschhoek

1.6.4 Ethics

Permission was granted by all participants to conduct the study. Staff members interviewed was informed of the project prior to the commencement thereof.
2 Literature Review

The literature review firstly supplies a background to the technical aspects of wine making and specifically quality issues. These are the elements the winemaker needs to manage. This leads to the competency requirement of the management involved. Thirdly I look at manufacturing outside of wine making to enhance the theory that emerged. Endorsing the theory with specific business principles brings additional validity. I close the review with supporting information on market pressure in this industry to support the need for this.

2.1 Technical and Quality

- Making Good Wine, Bryce Rankine, 2006
  - This is one of the best books on the market to understand the technicalities involved in wine making. It takes you through a step by step approach on all aspects of wine making

  - Oenologists maintain four factors that determine the quality of wine: soil, climate, vine type and man.

- Making Good Wine, Bryce Rankine, 2006
  - Quality control commences in the vineyard and concludes when the packaged wine reaches the consumer. Its purpose is to make the most efficient use of the available resources — grapes, facilities and people — to produce products of an agreed standard.

2.2 Business Competency requirements

References to the competency factor required in modern day business as required in the competency for the viticulturist.


2.3 Manufacturing principles: Broad base
References to principles in manufacturing from other industries that has an impact on the wine industry and specifically on this approach followed

- Eighteen "monozukuri-focused" assembly line design and visual factory management principles with Denso industrial examples. Paul G Ranky, Department of Industrial and Manufacturing Engineering and IT Departments, New Jersey Institute of Technology, Multi-lifecycle Engineering Research Center, Newark, New Jersey, USA.  

  - The first principle in this journal refers to a design and simulation in the digital domain, before anything is built on the factory floor (winery), following monozukuri-focused (ecofriendly, sustainable, long-term increasing profit and quality) product, assembly system and factory design rules. It supports the simulation model concept I suggest for the Wine Industry.

  - Principle 3 refers to the long-term thinking, even if this means initially hard to accept financial terms. In the Wine Industry every decision taken on product has got a long-term affect. In the winery some products can mature up to 5 years or longer before being released into the market. Thus any model that is applied needs to look beyond this minimum to make any contribution.

2.4 Business Principles

References to business principles in relation to business concept followed

- The 7 Habits of Highly effective People, Steven R Covey

  - Begin with the end in mind
  - Synergy, the state where the whole is more than the sum of the parts
  - This well known statements of Steven R Covey summarizes the approach required
• Making Good Wine, Bruce Rankine, 2006
  ❦ As an winemaker one should be technically and academically competent, have a discriminating and trained pallet, an appreciation of wine types and quality, be able to manage staff, and have some knowledge of management, costing and marketing.

• The Viable Systems Model, Jon Walker, 1991
  ❦ Focusing on the requirements in the metasystem
2.5 Market Pressure

Reality in the market place

- **Rabobank, Winning Strategies in the wine industry, Arend Heijbroek, Rabobank 2006**

  - The wine industry is facing one of its greatest challenges in recent times. This challenge has been brought about by a structural and long-term oversupply that has caused falling prices and margins all round the globe. In addition, the market pressure is translating into shifts in competitiveness.
3 Research Framework

3.1 Research Methodology

The methodology used in this paper is Grounded Theory (GT). Basically it means it is build from data. On the Wikipedia website it describes it as follows: It is a research method that operates almost in a reverse fashion to traditional research and at first may appear to be in contradiction of the scientific method. Rather than beginning by researching & developing a hypothesis, a variety of data collection methods are the first step. From the data collected from this first step, the key points are marked with a series of codes, which are extracted from the text. The codes are grouped into similar concepts, in order to make them more workable. From these concepts categories are formed, which are the basis for the creation of a theory, or a reverse engineered hypothesis. This contradicts the traditional model of research, where the researcher chooses a theoretical framework, and only then applies this model to the studied phenomenon.

The following summary on Grounded Theory was made from ©Academy of Management Journal 2006. Vol. 49, No. 4, 633-642. article on "What Grounded Theory is Not" by Roy Suddaby of the Alberta University on request of the editors of the journal.

- Grounded theory is not an excuse to ignore literature
  The researcher does not enter the field without any knowledge of prior research or knowledge of the field.

- Grounded theory is not presentation of raw data
  A key element of grounded theory is identifying 'a slightly higher level of abstraction—higher than the data itself (Martin & Turner, 1983:147)

- Grounded Theory Is Not Theory Testing, Content Analysis, or Word Counts
  The purpose of grounded theory is not to make truth statements about reality, but to elicit fresh understandings about patterned relationships between social actors and how these relationships and interactions actively construct reality.

http://en.wikipedia.org/wiki/Grounded_theory#cite_note-0#cite_note-0
Grounded Theory Is Not Simply Routine Application of Formulaic Technique to Data

The key issue to remember here is that grounded theory is an interpretive process, not a logico-deductive one.

Grounded Theory Is Not Perfect

A healthy tension between methodologists and practitioners is desirable, but should avoid fundamentalist approach and evaluation of grounded theory.

Grounded Theory Is Not Easy

The researcher must engage in ongoing self-reflection to ensure that they take personal biases, world views and assumptions into account while collecting, interpreting and analyzing data.

Because the somewhat artificial boundary between researcher and research subject is removed, the quality of the contact between researcher and empirical site and the quality of the research produced have a direct relationship

Grounded theory is an interpretive process that depends upon the sensitivity of a researcher to tacit elements of the data or meanings and connotations that may not be apparent from a mere superficial reading of denotative content. Many grounded theory researchers describe this interpretation as occurring subconsciously, as a result of their constant 'immersion' in the data. Because of this close and longstanding connection, the personality, experience, and character of a researcher become important components of the research process and should be made an explicit part of the analysis.
3.2 Data Collection Method

- Conversational interview
- Participant observation
- Data analysis, coding & categorisation
- Literature research

3.3 The GT Process

Grounded theory begins with a research situation where your task as researcher is to understand what is happening there and how the players manage their roles. You will mostly do this through interviews, participant observation and conversation.

The main procedures of the methodology are:

- Data gathering: interviews and participant observation
- Data ordering: the data are analyzed using coding: a labeling concept that represents discrete happenings and other similarities
- Data analyses: categories are generated with the help of interpretive procedures.
- Theory development: selecting core categories, systematically relating it to other categories. Constant comparison is the heart of the process validating these relationships.
- Theory saturation: proceed until categories need no further refinement (marginal value of new data minimal)
- Literature comparison: compare the emerged theory with the extant literature and examine what is similar, what is different, and why

---

3.4 Grounded Theory results

Through the process of open and axial coding in ATLAS/ti a number of concepts and categories were generated and developed. During selective coding (i.e., the integration of categories) the core category was defined and labeled 'recovery strategy content'. The other major categories were then related to this category. The content of appropriate recovery strategies were found to be contingent upon six sets of contextual factors: the causes of decline; the severity of the crisis; the attitude of stakeholders; industry characteristics; changes in the macroeconomic environment; and, the firm's historical strategy. The content of recovery strategies was usefully decomposed into operational level actions (management change, improved controls, reduction in production costs, investment in plant and machinery, decentralization, improved marketing, and restructuring finances) and strategic level actions (asset reduction/divestiture and product/market reorientation). An implementation or process dimension was also discovered. Successful actions to affect recovery fall into four distinct (but overlapping) stages (the management change stage, the retrenchment stage, the stabilization stage, and the growth stage). A diagrammatical depiction of this framework is given in the table below (see Pandit, 1995 for a fuller discussion).

---

24 http://www.nova.edu/ssss/QR/QR2-4/pandit.html#panditref
A Theoretical Framework of Corporate Turnaround

**CONTEXTUAL FACTORS**
- The causes of decline
- The severity of the crisis
- The attitude of the stakeholders
- Industry characteristics
- Changes in the macroeconomic environment
- The firm's historical strategy

**IMPLEMENTATION / PROCESS OF RECOVERY ACTIONS**
- Management change stage
- Retrenchment stage
- Stabilisation stage
- Growth stage

**RECOVERY STRATEGY CONTENT**

**Operational level:**
- Management change
- Improved controls
- Reduction in production costs
- Investment in plant and machinery
- Decentralization
- Improved marketing
- Restructuring finances

**Strategic level:**
- Asset reduction/divestiture
- Product/market reorientation

53 propositions linking the concepts and categories within the framework were generated and tested.
Table below lists a sample of five (see Pandit\textsuperscript{25}, 1995, pp. 277-278 for the full list).

### A Sample of Propositions Generated by the Literature Case and Supported by the Cases of Fisons and BSC

<table>
<thead>
<tr>
<th>Proposition Generated by the Literature Case</th>
<th>Fisons</th>
<th>BSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>A sustained deterioration in performance is the result of both internal and external causes.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Successful turnaround firms are more severely affected in terms of financial performance in the downturn phase than unsuccessful recoveries.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>If the causes of decline are primarily internal in origin, actions that improve efficiency at the operational level should be emphasised to effect successful recovery.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>If the causes of decline are primarily external in origin, strategic level actions should be emphasised to effect successful recovery.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Appropriate recovery actions vary according to industry stage.</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

\textsuperscript{25} http://www.nova.edu/ssss/QR/QR2-4/pandit.html#panditref
4 Research Results

Based on the information as found in Appendix B I have divided the answers and notes into two scenarios. First a knowledge base required and secondly the application of this knowledge. I then divided the knowledge base into three areas of different specialist fields.

Knowledge of:

Level of understanding of Style, Wood application and maturation

- Timing of picking of grapes
- Vineyard site
- Know-how of viticulturist
- History of vineyard performance
  - Knowledge of vine type
  - Condition at time of ripening

4. Wood application

1. Choice of yeast
2. Facilities on hand
3. Knowledge of fermentation
   - Attention to detail e.g. chemical analysis for control
     - Extraction approach, e.g. bleeding of for color enhancement or not
     - Capacity of cellar
4. Volume demanded

L Wood application

Facilities
- Must know the expectations from the market for a product
- Must know the quality elements of the product
- Knowledge and experience to manage and balance the variances of climatic differences of the vintage with that of the product
- Must understand the terroir of the vineyard
- Knowledge and experience to link the elements of the grape with that of the product
- Knowledge of protecting flavors in juice
  - Wood procurement, type of barrel e.g. size, toast, cooper, country

5. Style to be achieved for product

Cellar hygienic
- Must understand the objective of quality required for end product
- Must know how to protect juice with winemaking practices

I: Extraction objectives per quality
- Must know the cost components of the product (specific the wood portion)
- Knowledge to convert cost components into a detailed budget - labour, capital, products like chemicals, etc
- Must have idea about financial implications of decisions
Individual needs a high level of skills
Needs tasting ability(pallet) — flavour, fault identification
  • PH, Acid, Sugar and Color — recordkeeping critical
  • Feedback of product to evaluate certain actions taken - recordkeeping of absolute importance
• Manage batches of quality
  • Blending skills
  • Clear and well designed upfront plan that covers quality in relation with product
• Communication — Volume required
  • Measure against objectives
  • Strict processing controls
• Information systems critical
  • Must know what budget is
  • Know how to budget

II. Information systems critical

Level of understanding of End Product:
As above

Level of understanding of Financial impact:
As above

Application of knowledge:

• Timing of picking of grapes
  • Vineyard site
  • Know-how of viticulturist
    • History of vineyard performance
  • Knowledge of vine type
    • Condition at time of ripening
• Wood application
  • Choice of yeast
" • Facilities on hand
  • Knowledge of fermentation
• Attention to detail e.g. chemical analysis for control
  • Extraction approach, e.g. bleeding of for color enhancement or not
• Capacity of cellar
  • Volume demanded
• Wood application
• Facilities
  • Must know the expectations from the market for a product
  • Must know the quality elements of the product
Knowledge and experience to manage and balance the variances of climatic differences of the vintage with that of the product
Must understand the terroir of the vineyard
Knowledge and experience to link the elements of the grape with that of the product
• Knowledge of protecting flavors in juice
  Choice of yeast
  Wood procurement, type of barrel e.g. size, toast, cooper, country
  Style to be achieved for product
• Cellar hygienic
L. Must understand the objective of quality required for end product
  Must know how to protect juice with winemaking practices
Ⅱ. Extraction objectives per quality
  ▪ Must know the cost components of the product (Specific the wood portion)
    Knowledge to convert cost components into a detailed budget - labour, capital, products like chemicals, etc
  Must have idea about financial implications of decisions
ⅱ. Individual needs a high level of skills
  Needs tasting ability (pallet) — flavour, fault identification
  PH, Acid, Sugar and Color — recordkeeping critical
  ▪ Clear and well designed upfront plan that covers quality in relation with product
  " Feedback of product to evaluate certain actions taken- recordkeeping of absolute importance
  Manage batches of quality
ⅲ. Blending skills
L. Clear and well designed upfront plan that covers volume in relation with each product
  Communication — Volume required
  ▪ Measure against objectives
    Strict processing controls
    Information systems critical
  Must know what budget is
ⅳ. Know how to budget
  ▪ Know what effect is on finance of decisions made

Application of knowledge is directly linked to the competency 26 of the manager or team of managers

5 Evaluation and Conclusion

Evaluating the set of arguments claimed in the Answer CLD (Appendix A), I need to provide a set of examples of how these arguments can be used in a practical context.

5.1 Level of understanding of the style, wood application and maturation

From the model in small win 3 a set of required quality levels targeting specific costs are provided to the winemaker. The degree to which the offering will matches the proposition are based on the competency of the winemaker who will have to manage the key elements in the winery to obtain the targeted quality at the proposed cost via the composition of the different components of wine making e.g. style, wood application and maturation. The winemaker will also draw on the records of previous harvests from the winery. He is however largely at the mercy of the grape quality delivered to the cellar.

An example of a request from the winery is seen in the next figure.

The request is for a pre-determined quality 2 cultivar products, not only for the next harvest, but for a 10 year period as it allows the winemaker to engage into long term planning, e.g. facilities, barrel warehousing, arranging contracts for purchasing of grapes, etc.
I do not deal with the technical aspects of quality in this paper, although revered to as background, as it is assumed the winemaker obtains that competency. The focus is on the information support to create an integrated overview.

The grapes will come into the cellar at an agreed price. The first quality, volume and financial impact incurred by the winery are the extraction of the juice from the grapes. A set of extraction targets should exist against which the winemaker can measure himself.

For increasing colour or more intense flavour components an initial extraction of juice (say 10%) could be done to a lower quality and the balance to the required quality. This will give a lower extraction volume at that quality, but potentially higher quality.
Wood application has various options depending on the style of wine and quality required. It can range from "teabags" to staves to barrels of various sizes e.g. 225, 300, 500, etc. The costing of wood has even more methods of allocation, but more about that in 5.3.

### 5.2 Level of understanding the end product

The level of understanding the end product is one of the most crucial aspects of the winemaker's make-up. The competency of the winemaker is drawn on here to identify each and every component of the wine, utilizing chemical, visual and tasting skills. The selected batches will then be managed according to its evaluation. Each product will have a timeline. Grapes that are harvested in e.g. 2009 might only be released in a final product in 2013 as in the product B2P02 below.
This has several implications on volume and cost as maturation to increase quality gathers cost, but also reduces volume due to handling and evaporation. More on this in 5.3

The next important aspect of understanding the end product is its blending components. A product can consist of various cultivars making up the required product. The first phase of the process the winemaker will produce a bulk wine of a specific quality end blend. This could then be used as the blending components for various products of similar quality.

An example of a blend for a bulk wine.

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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Variety</td>
<td>Blend Components (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chardonnay</td>
<td>18%</td>
<td>18%</td>
<td>18%</td>
<td>18%</td>
<td>18%</td>
<td>18%</td>
<td>18%</td>
<td>18%</td>
<td>18%</td>
<td>18%</td>
<td>18%</td>
</tr>
<tr>
<td>Cabernet Franc</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Malbec</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
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<td>5%</td>
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<td>5%</td>
</tr>
</tbody>
</table>

Source: Christalball
This takes us to the interesting calculation of grape volumes required per quality level. In this calculation various aspects need to be taken into account such as total period of production for losses, loss at bottling stage and the blending components.

From the information available to us we can start putting together a potential answer to this question.

Volume required for final product in case amount * case size * bottle size = Net liters

Net liters * (1-loss %) * time = Gross liters

Gross liters * Blend% Bulk wine = Gross liters of bulk wine

Gross liters of bulk wine * Blend% of Cultivar wine = Liter volume required per cultivar

Liter volume required per cultivar * Extraction % / Liter per ton = Grape cultivar tons required
5.3 Level of understanding of the financial impact

Based on the formula to calculate the volumes for the different stages and qualities it is clear that the calculation of the financial impact can be challenging. Starting with the cost of the grape as it comes in either purchased or produced as a base.

Divide the price per ton by the liters extracted e.g. Chardonnay (650 l/ton) divided by the extraction % (100%)
R 7 013 /650 /100% = R10.79

See next page
R 10.79 + R 10.02 = R 20.81 (What I call the base cost)

Now we have to add production cost accumulated over the production time and compensate for the losses over that production time. This will give us the bulk wine price. See the example of bulk wine cost at top of page.
5.4 *Degree to which the variables in Winemaking can be managed*

From the above it is clear that with an informed approach, beginning with the end in mind\(^{27}\) with the correct competencies in place, the variables in winemaking can be managed towards an increasing degree of matching the proposition.

5.5 *Relevance*

From the study an integrated information and forecasting model was developed for the wine business.

- Identified the role of different specialist in their fields for a synergistic answer
- Create phenomenal data resources to draw from
- Create ideal conditions for all parties to base decisions on.
- Personal growth.
- Enhance the company strengths and address the weaknesses
- Address the broader company expectations
- Enhance the industry opportunities
- Supply base for future competitive strategy
- To manage and optimize key variables towards proposition
- To measure performance
- To create feedback

5.6 *Utility*

From the study an integrated forecasting model for the wine business was developed.

- Emphasis was placed on optimizing the key variables in the winery to determine a standard
- To manage and optimize key variables
- To measure performance
- To create feedback
- To forecast/simulate a potential future

5.7 *Validity*

The grounded theory process was rigorously applied to gather and synthesize data. The methods used to collect data included conversational interviews, 9 years of

\(^{27}\) The 7 Habits of Highly Effective People, Stephen R. Covey
experience in the industry as well as 8 years of model building to understand the process. Numerous field notes and memos were utilized to identify core concepts. These concepts were validated and substantiated by literature review. Having identified the relationship between the concepts and the emergence of the core variable and answer CLD was developed.

The following were identified as threats to the validity of the research

- Limited time for testing the model

5.8 Ethics

Permission was granted by all participants to conduct the study. Staff members interviewed was informed of the project prior to the commencement thereof.
6 Appendix A

The following process provides a basis for Answer CLD.

I need to develop a set of arguments that support the claims that the concepts illustrated in Fig. A are related in the way illustrated. I thus need to provide answers to the following questions raised by the question marks in Fig A:

1. In what way will an increase in the level of competency of the winemaker increase the level of understanding of the effect of style, wood and maturation, of the end product, of the financial impact?

2. In what way will an increase in the level of understanding of the end product increase the level of understanding of the effect of style, wood and maturation and of the financial impact?

3. In what way will an increase in the level of understanding of effect of style, wood and maturation increase the level of understanding of the end product and of the financial?

4. How will the increased financial understanding support the level of understanding of the end product and of the effect of style, wood and maturation?

5. How will what way will these increased levels of understanding affect the degree to which these variables can be managed?

This is done by a four step process that constructs a CLD that form the basis of the strategic options.
Step 1
In what way will an increase in the level of competency of the manager increase the level of understanding of the effect of style, wood and maturation, of the end product and of the financial impact?

A competency is defined as a capability or ability. It is a set of related but different sets of behaviour organized around an underlying construct, which we call the intent. The behaviours are alternate manifestations of the intent, as appropriate in various situations or times.  28

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Expertise

According to Richard E. Boyatzis in Competencies in the 21st century 29 the three clusters of threshold competencies are:

1. expertise and experience
2. knowledge
3. an assortment of basic cognitive competencies

Putting the right team in place is one of the most important steps in anything you venture into as emphasised by Jim Collins in Good to Great 30. The level of understanding of the end product is best understood by the winemaker when supported by market information via the sales person. The level of understanding of the effect of style, wood and maturation is best understood by the winemaker, his area of expertise, experience and knowledge base. This logically means that a financial expert, with experience and knowledge needs to assist the winemaker and sales person in increasing the level of understanding in these three areas. An integrated approach would be required as it reaches across different areas of expertise.

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30 Collins Jim, Good to Great, 2001
This will have the following benefits for us:

1. Increased competitiveness.
2. Increased level of strategic alignment with objective.
3. Increased level of management information to base decisions on.
4. The better we understand the processes, the more effective we will differentiate. This understanding will largely consist of:
   - How to develop the required management ability - the knowledge, skill, and talent to successfully manage the increased understanding of competitiveness;
   - How to develop the required management behaviour - the visible actions that contribute to the accomplishment of the management task;
   - How to develop the predisposition to make the effort - the conscious application of mental and physical resources toward a particular end;
   - How to develop the predisposition to commit the required time - the period in which human capital is invested.

These are considered to be the four dimensions of human capital - the combination of these four elements produces effective management performance (Davenport 1999). As the pressure in the market increases through increased demands on all levels of the business we have to increase the depth of our understanding of the development of our human capital resources.

An increased level of expertise will allow you to constantly increase your ability to cope with the demands of the levels of understanding of the effect of style, wood and maturation and of the understanding of the financial impact.

Fig B illustrates the logic of this process.
Step 2
An increased level of understanding of the end product will enhance your ability to obtain higher levels of skillfulness in your level of understanding of the effect of style, wood and maturation and of the understanding of the financial impact.

Skillfulness means to be cognitively skilful which requires an ability to exercise your skill and share it.

Skilfulness
In the journal, Skills and competency management by Mark Homer, he states that people skills are probably the most important foundation for a company because of the impact on every aspect of corporate process and, ultimately, profit.

1. Skill to understand company's intent
2. Skill to evaluate end product requirement
3. Skill to transfer understanding

The above will have the following benefits for us:
1. Increased effectiveness.
2. Increased level of viability.
3. Increased level of management information to base decisions on.

These abilities will enable you to develop your level of delivering a skillfulness that will increase effectiveness and viability in your levels of understanding of the effect of style, wood and maturation and of the understanding of the financial impact.

This logic is illustrated in Fig C.

Step 3

Good utilisation of increased levels of understanding of the effect of style, wood and maturation can potentially improve your ability to operate at a higher level of efficiency. This concept refers to my understanding of the importance of style, wood and maturation in the process. This would include issues like technical skills, knowledge and experience.

Efficiency

The style, wood and maturation needs to be dealt with in great efficiency. The most important issues of the viticulturist is:

1. Knowledge
2. Technical Application
3. Experience - understanding of past performance

Good utilisation of above will have the following benefits for you:

1. Improved levels understanding
2. Increased potential value
3. Increased commitment

The increased understanding of level of understanding of the effect of style, wood and maturation will lead to an increase in efficiency of operational ability as well as overall viability. Fig D illustrates the logic of this process.

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32 Phenolics in Grapes, Andrew L. Waterhouse and UC Davis Students of Natural Products of Wine, 2001
33 Phillip Freese, Tasting the Vineyard, 2008

39
Step 4

High level of understanding of the financial impact will increase the potential knowledge that will improve the viability of the business.

This concept refers to combination of the knowledge of an organization - a synergic effect of experience and skills of all employees as well as information resources possessed by an organization.\(^\text{34}\)

Knowledge

1. Capturing and developing knowledge resources.
2. Consolidating and storing knowledge resources.
4. Knowledge resources verification (measure and evaluation) and updating.
5. Protecting knowledge resources.\(^\text{35}\)

This will have the following benefits:

1. Create phenomenal data resources to draw from
2. Create ideal conditions for all parties to base decisions on.
3. Personal growth.
4. Enhance the company strengths and address the weaknesses
5. Address the broader company expectations
6. Enhance the industry opportunities
7. Supply base for future competitive strategy

\(^{34}\) The influence of Knowledge Management on global corporations' competitiveness, Robert Karaszewski, Journal of Knowledge Management, Vol.12 No.3 2008, pp.63-70, Emerald Group Publishing Limited

The company’s strengths and weaknesses are its profile of assets and skills relative to competitors/ including financial resources, technological posture, brand identification, etc. The personal values of an organization are the motivations and needs of the key executives and other personnel who must implement the chosen strategy. Strengths and weaknesses combined with values determine the internal limits for a competitive strategy. The external limits are determined by its industry and broader environment. Industry opportunities and threats define the competitive environment, with its attendant risks and potential rewards. Societal expectations reflect the impact on the company of such things as government policy, social concerns, evolving mores, etc. These four factors must be considered before a company can develop a realistic and implementable set of goals and policies.  

Increased levels of understanding of financial impact will increase the potential knowledge that will enhance the potential competitiveness.

Fig E illustrates the logic of this process.

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36 Michael Porter, Competitive Strategy, Free Press, 2004
Step 5

An increased level of understanding of the end product, of the effect of style, wood and maturation and of the financial impact will facilitate the synergy that will improve the degree to which the variables in winemaking can be managed.

This concept refers to a synergic effect where the combined solutions are far better than what the individuals originally suggested. 37

Synergy

Synergy is the state in which the whole is more than the sum of the parts, 38 Building on their strengths and compensating their weaknesses with the strengths of the others to increasingly manage the variables in winemaking. This will result in an increasing degree of achieving the offering that matches the proposition.

Fig. F illustrates the logic of this process.

37 Principle-centered leadership, Stephen R. Covey, 1999
38 The 7 habits of highly effective people, Stephen R. Covey
7 Appendix B

Research Question

Degree to which key variables in winemaking can be managed in relation to Quality, Volume and Cost

Interviews: JC Bekker(DGB), R Christians(Rustenberg), L O'Cunnigan(Glen Elly), K Milne(MW)

Question: What are the key elements in winery operations?

Quality:
- Timing of picking of grapes
- Vineyard site
  - Know-how of viticulturist
  - History of vineyard performance
- Knowledge of vine type
  - Condition at time of ripening
    - Wood application
- Choice of yeast
  - Facilities on hand
    - Knowledge of fermentation
  - Attention to detail e.g. chemical analysis for control

Volume:
- Extraction approach, e.g. bleeding of for color enhancement or not
  - Capacity of cellar
  - Volume demanded

Cost:
- Availability of funds
  - Budget
    - Wood application
  - Facilities
Question: Key information required planning winery operations?

Quality:

Must know the expectations from the market for a product
Z. Must know the quality elements of the product
   Knowledge and experience to manage and balance the variances of climatic
differences of the vintage with that of the product
   Must understand the terroir of the vineyard
Z. Knowledge and experience to link the elements of the grape with that of the
   product
   Knowledge of protecting flavors in juice
Z. Choice of yeast
Z. Wood procurement, type of barrel e.g. size, toast, cooper, country
   Style to be achieved for product
   Cellar hygienic

Volume:

Must understand the objective of quality required for end product
Must know how to protect juice with winemaking practices
Extraction objectives per quality

Cost:

Must know the cost components of the product(Specific the wood portion)
Knowledge to convert cost components into a detailed budget - labour, capital,
products like chemicals, etc
Z. Must have idea about financial implications of decisions

Question: How do you manage this information to achieve required quality, volume
and cost

Quality:

Individual needs a high level of skills
Z. Needs tasting ability(pallet) — flavour, fault identification
Z. PH, Acid, Sugar and Color — recordkeeping critical
Z. Clear and well designed upfront plan that covers quality in relation with product
   Feedback of product to evaluate certain actions taken- recordkeeping of absolute
   importance
   Manage batches of quality
   Blending skills
Volume:
   Clear and well designed upfront plan that covers volume in relation with each product
   - Communication — Volume required
   - Measure against objectives
   - Strict processing controls

Cost:
   - Information systems critical
     - Must know what budget is
     - Know how to budget
     - Know what effect is on finance of decisions made
8 Appendix C

8.1 The Wine Business Simulation Model: An Integrated approach

The wine business consists of a vast range of variables that have an effect all along the value chain from grape to wine to product. There are basically 3 areas of expertise in the chain namely: viticulture (grape growing), winemaking, product sales.

Linking this to the VSM model this all forms part of the Primary activities of System 1. These are very much specialise areas, especially viticulture and winemaking, where little reference to the Metasystem of Policy (System 5); Adaptation, Forward planning and Strategy (System 4); Internal regulation, Optimization and Synergy in their initial training, exists.

The ever changing market demands as seen in the Rabobank report "Winning Strategies in the wine industry, 2006: The wine industry is facing one of its greatest challenges in recent times. This challenge has been brought about by a structural and long-term oversupply that has caused falling prices and margins all round the globe. In addition, the market pressure is translating into shifts in competitiveness." emphasizes the need for the metasystem in the wine business and thus the need for a supportive alternative financial model to assist these specialist in not only their fields of expertise, but also creating an overview of all the components of the business so that a change in one variable could be traced to see the effect on not only the next variable, but the overall business’s objectives and viability.

In this small win I will be focusing on Wine making.

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39 The Viable Systems Model, Jon Walker, 1991
40 Rabobank, Winning Strategies in the wine industry, Arend Heijbroek, Rabobank 2006
8.2 Goal of Research

To create a tool that can assist the wine business manager, viticulturist, winemaker and sales manager in:

1. Determining Set of Targets within the bigger Business Objective
2. Managing Key Variables
3. Measuring Performance
4. Creating Feedback

8.3 Conceptual Framework

My understanding of the drivers of the key management decision areas in the wine industry are based on my experience in the wine industry over the last 9 years, my studies at the Graduate School of Business, Cape Town and the University of Adelaide. The framework is specifically focused on the degree to which the offering (produced wine: quality, volume, cost) matches the proposition (expected wine: quality, volume, cost).

The following CLD portrays this concept:

The highlighted rose section refers to the viticulture concept dealt with in this paper.
8.4 Research Question

Firstly: What are the key variables in winemaking that can influence the outcome of?

- Quality
- Volume
- Cost

Secondly: Degree to which these variables in winemaking affects the outcome of:

- Quality
- Volume
- Cost

In relation to the proposition of:

- Quality
- Volume
- Cost

Checkpoint
8.5 Research Methodology

- Method: Grounded Theory
  - Conversational Interviews
  - Participant observation
  - Data analysis, coding & categorisation

8.6 Issues of Validity

- Time of Research: Financial Year end for researcher-Limited time to test logic of model
- Limited to Stellenbosch, Paarl and Franschhoek region
  - Researcher's current understanding of winemaking processes and variables
10 Appendix C

Example of information from business plan (Case Study B) for management decisions.

Pages 1 — 41
Case Study B

Business Plan

C du Tut
Vineyard

- Actual information are recorded as a base for vineyard calculations
- Records of previous vintages will be used for determining potential crops as well as industry averages
Vineyard (cont)

Cultivars with harvest dates

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• Factors will be based on previous recordings, industry averages or intent
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Vineyard (cont)

Yield factor for coming into production

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LIFESPAN

Total lifespan of vine: 40

Factor
## Vineyard (cont)

### Average industry selling price of grapes

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Factor
Vineyard (cont)

### Quality intent per block

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<td>1979</td>
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<th>Cabernet Sauvignon</th>
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<td>1 21</td>
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<td>1 27</td>
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<td>1 30</td>
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## Vineyard (cont)

### Quality intent per block

#### Shiraz

| Farm Name | BlockCode | PlantYear | Cultivar | Size (Ha) | QLY1 | QLY2 | QLY3 | QLY4 | QLY5 | QLY6 | QLY7 | QLY8 | QLY9 | QLY10 |
|-----------|-----------|-----------|----------|-----------|------|------|------|------|------|------|------|------|-------|
| 1 34      | 1998      | Cul04     |          | 5.590     | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| 1 22      | 2009      | Cul04     |          | 4.280     | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    |

#### Sauvignon Blanc

| Farm Name | BlockCode | PlantYear | Cultivar | Size (Ha) | QLY1 | QLY2 | QLY3 | QLY4 | QLY5 | QLY6 | QLY7 | QLY8 | QLY9 | QLY10 |
|-----------|-----------|-----------|----------|-----------|------|------|------|------|------|------|------|------|-------|
| 1 29      | 1978      | Cul05     |          | 1.740     | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    |
| 1 01      | 1979      | Cul05     |          | 4.560     | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    |
| 1 04      | 1980      | Cul05     |          | 3.580     | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    |
| 1 05      | 1981      | Cul05     |          | 2.320     | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    |
| 1 07      | 2008      | Cul05     |          | 8.420     | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    |

#### Chardonnay

| Farm Name | BlockCode | PlantYear | Cultivar | Size (Ha) | QLY1 | QLY2 | QLY3 | QLY4 | QLY5 | QLY6 | QLY7 | QLY8 | QLY9 | QLY10 |
|-----------|-----------|-----------|----------|-----------|------|------|------|------|------|------|------|------|-------|
| 1 24      | 1982      | Cul06     |          | 1.960     | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    |
| 1 08      | 1985      | Cul06     |          | 3.550     | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    |
| 1 25      | 1992      | Cul06     |          | 4.920     | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| 1 26      | 1994      | Cul06     |          | 3.560     | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |

**Factor**
### Block specific adjustments for yield

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<th>Average</th>
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<td>Size(Ha)</td>
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### 3) COST PER HECTARE

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<td>32.80</td>
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<td>89.9%</td>
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<td>100.0%</td>
<td>100.0%</td>
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<td>69.2%</td>
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<td>41,614</td>
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<td>85.5%</td>
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<td>4,760</td>
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<td>2,850</td>
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<td><strong>GRAPE RECOVERY PROFIT/(LOSS)</strong></td>
<td>(183,170)</td>
<td>(391,800)</td>
<td>(454,641)</td>
<td>(452,516)</td>
<td>(479,667)</td>
<td>(444,046)</td>
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<tr>
<td><strong>NETT GRAPE PROFIT/(LOSS)</strong></td>
<td>(150,402)</td>
<td>(391,800)</td>
<td>(454,641)</td>
<td>(452,516)</td>
<td>(479,667)</td>
<td>(444,046)</td>
<td>(379,001)</td>
<td>(481,741)</td>
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*Should be 100% if all vineyards are in full production*
Vineyard (cont)

- Calculations are made with all relevant actuals and factors to provide a forecast, minimizing uncertainty
Vineyard (cont)

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<td>6,279</td>
<td>6,666</td>
<td>7,055</td>
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<td>6,728</td>
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<tr>
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<td>6,279</td>
<td>6,666</td>
<td>7,055</td>
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Calc
# Vineyard (cant)

## Price per ton per cultivar

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Vineyard (cant)

Tons produced per quality level

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### Tons produced per quality level

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Calc
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**Calc**

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563.34  601.02  633.59  563.25  672.24  672.24  640.52  618.92  618.92  607.95
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## Vineyard (cant)

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### Tonnage required per quality level

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Calc
Vineyard (cont)

Tonnage over/under produced per cultivar per quality

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Calc
Vineyard (cont)

Grape demand vs. supply
Winery

- Assumptions are formatted as factors in calculations
- Factors will be based on previous recordings, industry averages or intent
Winery

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Winery (cont)

Percentage loss per liter per month during production

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Winery (cont)

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Time line represents the production period of a wine.
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Winery

• Follow the build up of the costs as it develops in the winemaking process
## Winery (cont)

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### Value divided by liters

Follow me
## Winery (cont)

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R9.42 x inflation = R9.98
## Winery (cont)

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Calc 30
## Winery (cont)

### Cost of product

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### Bottels

- Bottles: 38,748
- Average Income: 38,981

### MARK UP

- 31.6% - 76.8%
- 72.9% - 69.9%
- 77.9% - 66.9%
- 67.9% - 64.6%
- 62.9% - 59.9%

### Notes

- **Calc**: From packaging cost on next slide

- **R19.65 ÷ (100 - 1)%**: 1% loss for bottling
### Packaging cost

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### Objective, sales target and growth plan

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**Update**: All volume requirements calculated from here

**Objective**: 15,156
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Market (cont)

### Pricing strategy

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**Objective**
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## Financials

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<td>1,727,344</td>
<td>1,326,523</td>
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<td>918,439</td>
<td>816,715</td>
<td>7,500,629</td>
<td>7,056,610</td>
<td>6,645,509</td>
<td>6,304,140</td>
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<tr>
<td><strong>Other</strong></td>
<td>234,494</td>
<td>214,694</td>
<td>47,978</td>
<td>47,055</td>
<td>48,586</td>
<td>46,665</td>
<td>45,410</td>
<td>45,826</td>
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<tr>
<td><strong>OTHER GP</strong></td>
<td>480,510</td>
<td>398,507</td>
<td>708,241</td>
<td>81,577</td>
<td>1,064,612</td>
<td>1,056,721</td>
<td>1,064,645</td>
<td>1,215,301</td>
<td>1,343,439</td>
<td>1,419,058</td>
<td>1,346,636</td>
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<tr>
<td><strong>GROSS PROFIT</strong></td>
<td>2,261,254</td>
<td>1,733,838</td>
<td>1,722,748</td>
<td>1,389,034</td>
<td>1,454,824</td>
<td>1,327,192</td>
<td>1,211,576</td>
<td>1,790,415</td>
<td>2,081,315</td>
<td>2,253,825</td>
<td>2,204,676</td>
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<tr>
<td><strong>MARKETING EXPENSES</strong></td>
<td>2,489,881</td>
<td>2,127,200</td>
<td>1,641,281</td>
<td>2,100,833</td>
<td>2,247,346</td>
<td>3,322,344</td>
<td>3,525,915</td>
<td>2,678,754</td>
<td>3,919,605</td>
<td>3,688,288</td>
<td>3,183,783</td>
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<td>292,323</td>
<td>303,772</td>
<td>304,247</td>
<td>210,865</td>
<td>181,053</td>
<td>332,107</td>
<td>353,107</td>
<td>275,141</td>
<td>428,352</td>
<td>424,771</td>
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<td>2,429,411</td>
<td>2,671,114</td>
<td>2,729,063</td>
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<tr>
<td><strong>NET PROFIT</strong></td>
<td>2,261,254</td>
<td>1,733,838</td>
<td>1,722,748</td>
<td>1,389,034</td>
<td>1,454,824</td>
<td>1,327,192</td>
<td>1,211,576</td>
<td>1,790,415</td>
<td>2,081,315</td>
<td>2,253,825</td>
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<td>1,755,398</td>
<td>1,720,446</td>
<td>1,652,276</td>
<td>1,604,012</td>
<td>1,564,955</td>
<td>1,813,523</td>
<td>1,942,891</td>
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<tr>
<td><strong>aryl</strong></td>
<td>545,788</td>
<td>1,078,910</td>
<td>1,172,886</td>
<td>1,755,398</td>
<td>1,720,446</td>
<td>1,652,276</td>
<td>1,604,012</td>
<td>1,564,955</td>
<td>1,813,523</td>
<td>1,942,891</td>
<td>1,807,891</td>
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<tr>
<td><strong>NET PROF</strong></td>
<td>2,261,254</td>
<td>1,733,838</td>
<td>1,722,748</td>
<td>1,389,034</td>
<td>1,454,824</td>
<td>1,327,192</td>
<td>1,211,576</td>
<td>1,790,415</td>
<td>2,081,315</td>
<td>2,253,825</td>
<td>2,204,676</td>
</tr>
<tr>
<td><strong>OVERHEADS</strong></td>
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<td>281,938</td>
<td>304,644</td>
<td>393,129</td>
<td>478,477</td>
<td>579,001</td>
<td>414,040</td>
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<tr>
<td><strong>EBIT</strong></td>
<td>2,256,055</td>
<td>1,788,340</td>
<td>1,742,944</td>
<td>2,018,845</td>
<td>2,597,757</td>
<td>3,197,197</td>
<td>3,716,876</td>
<td>4,293,781</td>
<td>4,507,309</td>
<td>4,660,236</td>
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<td>38,916</td>
<td>236,061</td>
<td>235,562</td>
<td>241,524</td>
<td>288,768</td>
<td>188,269</td>
<td>184,276</td>
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<tr>
<td><strong>EBITDA</strong></td>
<td>2,257,171</td>
<td>1,788,340</td>
<td>1,742,944</td>
<td>2,018,845</td>
<td>2,597,757</td>
<td>3,197,197</td>
<td>3,716,876</td>
<td>4,293,781</td>
<td>4,507,309</td>
<td>4,660,236</td>
<td>4,660,236</td>
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</tbody>
</table>

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**Notes:**

- All figures are in thousands of Rands.
- The table above provides a forecasted income statement for the years 2009 to 2019 for a winery.
- The main income sources are from wine sales and other income.
- Expenses include marketing, salaries, research and development, and production variances.
- Net profit is the primary indicator of financial health.

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**39**
### Financials (cont)

#### Winery

**FORECASTED BALANCE SHEETS**

<table>
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<td><strong>ASSETS</strong></td>
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<td>Non Current Assets</td>
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<tr>
<td>Plant &amp; Equipment Investments</td>
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<tr>
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<tr>
<td>Inventory</td>
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<td>6,308,844</td>
<td>6,096,993</td>
<td>6,793,840</td>
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<td>Trade &amp; Non Trade Debtors</td>
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<td>1,263,236</td>
<td>1,416,247</td>
<td>1,799,838</td>
<td>1,687,460</td>
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<td>1,393,877</td>
<td>2,337,326</td>
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<td>218,384</td>
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<td>218,384</td>
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<td>218,384</td>
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<td>218,384</td>
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<tr>
<td>Total Current Assets</td>
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<tr>
<td><strong>TOTAL ASSETS</strong></td>
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<td>13,392,938</td>
<td>15,319,186</td>
<td>17,117,316</td>
<td>18,766,692</td>
</tr>
</tbody>
</table>

#### EQUITY AND LIABILITIES

**Capital & Reserves**

- Profit (Loss) for the Year: -287,044 - 881,286 - 678,788 - 1,231,349 - 1,391,410 - 1,816,307 - 1,797,098 - 1,957,884 - 1,832,318 - 1,805,028
- Total Capital & Reserves: -1,778,818 - 2,660,104 - 2,081,336 - 880,227 - 877,184 - 2,474,510 - 4,320,817 - 6,309,915 - 8,267,799 - 10,100,117 - 11,305,145

**Non Current Liabilities**


**Current Liabilities**

- Bank Overdraft: 2,112,137 - 2,133,341 - 2,133,786 - 66,474 - - - - - -

**Total Current Liabilities**


**TOTAL EQUITY AND LIABILITIES**

- 6,585,789 - 5,876,338 - 7,265,620 - 7,612,194 - 7,915,012 - 9,513,833 - 11,434,520 - 13,393,938 - 15,319,186 - 17,117,316 - 18,766,692
Financials (cont)