

The copyright of this thesis rests with the University of Cape Town. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

A Financial Economic Approach

to

Management Information

in the

Wine Industry

**Chris du Toit
DTTCHR009**

UNIVERSITY OF CAPE TOWN
GRADUATE SCHOOL OF BUSINESS

DECLARATION

1. I know that plagiarism is wrong. Plagiarism is to use another's work and pretend that it is your own.
2. I have used the APA referencing convention for citation and referencing. Each significant contribution and quotation from the works of other people has been attributed, cited and referenced.
3. I certify that this submission is all my own work.
4. I have not allowed and will not allow anyone to copy this essay with the intention of passing it off as his or her own work.

Signature:

Date: 17 March 2010

Signed by candidate

TABLE OF CONTENTS

1	Abstract	7
2	Introduction and Overview	11
	2.1 Situation	11
	Wine markets across the globe under pressure.	11
	2.2 Concern	16
	A lack of understanding of the wine business's inner workings exists	16
	2.3 Question	21
	How can we use principles from financial economics to improve business planning in the wine industry?	21
	2.4 Answer	21
	The inclusion of purpose into knowledge brings new insight	21
	2.5 External environment	23
	The demands of the external environment must drive the application and alignment of the resources of the internal operations.	23
	2.5.1 Level of alignment of strategic objective	26
	Broadly defined target that an organization must achieve to make its strategy succeed.	26
	2.5.2 Level of competency / technical knowledge	27
	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.	27
	2.5.3 Degree to which the offering matches the proposal	27
	A relevant business plan development which can align the offering to matches the objectives of the company.	27
	2.5.4 Relationship between variables	28
	Intent, altruism and evaluation supports relationships	28
	2.6 Internal environment	31
	Optimum utilization of resources to maximize profitability	31
	2.6.1 The level of understanding of the soil, climate and vine type	32
	The effect of these components on quality, volume and cost	32
	2.6.2 The level of understanding of the product	36
	Effect of extraction, maturation and wood on intended style and including packaging on cost.	36
	2.6.3 The level of understanding of the market	41
	The ability to improve the viability of the business in conjunction with the resources.	41
	2.7 Financial economics	43
	It provides management with information to make decisions, adjust plans and align resources to constantly improve performance and profitability	43
	2.7.1 Relationship between variables	44
	Proficiency and efficiency enhances the relationship between variables	44
	2.8 Putting it to the test. (Rationale)	47
	Developing ideas into measurable targets and then into actionable knowledge.	47

	2.9 Closing the loop (Evaluation).....	51
	Actionable knowledge for management to enhance their decision making in their quest for viability and sustainability	51
	2.9.1 Relevance	52
	A theory that will bring the relevant acumen that will allow the industry to be viable and sustainable	52
	2.9.2 Utility	53
	Introducing the external and internal environment into the business planning framework brings an additional level of insight and understanding.	53
	2.9.3 Validity	53
	The financial economic approach improves the competitiveness and viability via an integrated business plan	53
	2.9.4 Ethics	54
	Ethics brings responsibility	54
3	Research Framework	55
	Perception begins with our senses, both for the world and for wine.	55
	3.1 My Framework	58
	A financial economic model to improve the knowledge of the business's inner workings	58
	3.2 Building Knowledge	62
	The methodology used for research was Grounded Theory	62
	3.3 The Process	63
	Data collection, assigning meaning and integrating categories	63
	3.3.1 Motivating Grounded theory	65
	The emphasis falls on the close examination of empirical data.	65
	3.4 Meta-Synthesis Method for amalgamation of research documents	67
	An explanatory theory or model which could explain the findings of a group of similar studies	67
	3.5 Values	68
	Moral values are the standards of good and bad	68
	3.6 Action	69
	Putting it into practice	69
4	Research Results	70
	What am "I" the vineyard going to become	70
	4.1 My Framework	72
	Developing my understanding of the drivers of the key management decision areas in the production of grapes	72
	4.2 Building Knowledge	74
	The methodology used for research was Grounded Theory	74
	4.3 The Process	74
	Data collection, assigning meaning and integrating categories	74
	4.3.1 Motivating Grounded theory	78
	Provide insight to those engaged in the behaviour under investigation	78
	4.4 Rationale	78
	How these arguments can be used in a practical context.	78
	4.5 Evaluation	84
	Putting the relevance, utility, validity and ethics to the test	84

5	Literature Review	85
5.1	Need for Economic perspective	86
	Primarily concerned with building models to derive testable or policy implications from acceptable assumptions	86
5.1.1	The economic way of thinking	88
	When we make a choice, we must select from the available alternatives	88
5.1.2	Strategic approach	88
	Managers at all levels of the business interact in planning and implementing	88
5.1.3	Finding balance in the business	89
	A management system that can channel the energies, abilities and specific knowledge held by people	89
5.2	The need for Business planning	89
	Planning is at the heart of good management	89
5.2.1	The Essence of business planning	89
	The understanding of your own business is of essence	89
5.2.2	A structured way of thinking	90
	Simplicity is rarely effective in the face of complexity	90
5.3	The need for understanding the inner workings	90
	The complexities of working from raw agriculture to sophisticated world markets within one environment	90
5.3.1	Viticulture	91
	Grapes provide the precursors to color formation, bitterness, and astringency in all wines	91
5.3.2	Winemaking	93
	The skill to produce products of an agreed standard	93
5.3.3	Wine Markets	94
	Make things happen	94
6	Conclusion and Evaluation	96
6.1	Addressing the concern	96
	The holistic view of the business and the openness of information allow everyone to be part of decision making.	96
6.2	Answering the question	97
	The allocation and deployment of economic resources, both spatially and across time, in an uncertain environment.	97
6.3	What next?	102
	The preferred business planner and financial economic accounting systems for the wine industry	102
6.4	Recommendation for further study	103
	Enhanced by developing an incentive model for remuneration.	103
6.5	Relevance	103
	Rising cost with limited opportunity to increase price points	103
6.6	Utility	104
	Finding balance between the external environment and the internal environment to increase viability and profitability.	104
6.7	Validity	105
	Logical connection of the variables developed into an integrated business plan	105

	6.8 Ethics	106
	The application of fundamental ethical principles	106
7	Principia Cybernetica Copyright Statement	107
8	Appendix A	108
9	Appendix B	109
10	Appendix C	110

University of Cape Town

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 worlds export market share, the 9th biggest, while wine production ranks 81st the world, producing 855,3 million liters for 1.7% of the worlds 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 know 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.¹ Truly a product to be enjoyed, but what does the producer have to deal with.

According to Nielsen², over 3300 wine brands have flood grocery stores since 1999 and they now represent about 70% of active brands today.

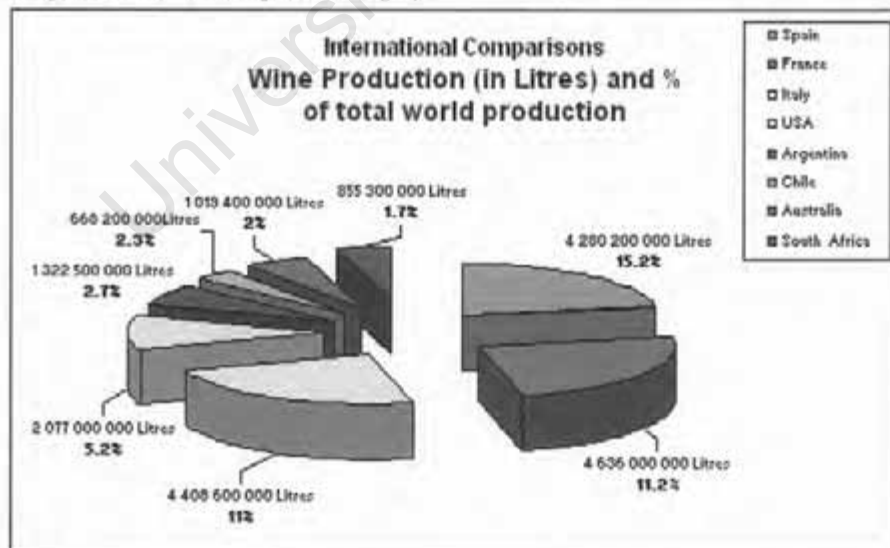
South Africa owns 2.4% of the world's export market share, the 9th biggest exporter of wine overall.

Wine production ranks 8th in the world³, producing 855,3 million liters, 1.7% of the world's total production.

Figure 2.1 Export share

Export market shares 2006		
Rank	Country	Market share
1	France	34.90%
2	Italy	18.00%
3	Australia	9.30%
4	Spain	8.70%
5	Chile	4.30%
6	United States	3.60%
7	Germany	3.50%
8	Portugal	3.00%
9	South Africa	2.40%
10	New Zealand	1.80%

Figure 2.2 Wine production



Source: www.wineroute.co.za

¹ Lindberg, Matthew L.; Ezra A. Amsterdam (2008). "Alcohol, wine, and cardiovascular health". Clinical Cardiology 31 (8): 347-51

² <http://www.winespiritsdaily.com/2008/11/wine-labels-almost-everything-to.html>

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 says⁴ 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.⁵ 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 romanticism 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 receipt 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. Its purpose was mainly to determine the volume delivered, quality category 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

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 value 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

Time	Activity	Relevant method	Unit of measure	Net realizable method	Difference	Action
Apr-06	Grapes @ 5 tons per hectare	1	11,675.48 ton			Total grape production
	Juice extracted @ 630 litres per ton		18.53 liter			Total litre production
	New wood component		17.95 liter			
	Cellar cost recovered		1.08 liter			
Jun-06	Financial year end	2	37.56 liter	5.35	32.21	Write off to cost of sales
	Cellar cost recovered	3	6.97 liter			
Jun-07	Financial year end	4	44.53 liter	4.57	7.75	Write off to cost of sales
	Cellar cost recovered	5	7.53 liter			
Jun-08	Financial year end	6	52.06 liter	4.89	7.21	Write off to cost of sales
	Cellar cost recovered	7	3.14 liter			
Dec-08	Final cost for wine	8	55.20 liter	4.89	3.14	Write off to cost of sales
			liter		50.31	Total write off to cost of sales
	Bottle 750 ml		bottle			Total Production
	Wine per bottle	9	41.40 bottle	3.67	37.73	Total write off to cost of sales
	Bottling, bottle and cork costs	10	12.21 bottle	12.21		
Jun-09	Financial year end	11	53.61 bottle	15.88		
	Labelling, packing and material cost	12	15.70 bottle	15.70		
Oct-09	Total cost @ release	13	69.31 bottle	31.58	-37.73	Additional profit
					-	End result appears the same

Losses during production ignored for clarity of explanation

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. In above Figure 2.1 in the yellow block I calculate the cost according to a method I have named the relevant method. (Relevant to the intent of the product that is.) 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 (10+12) per bottle leaving us with the juice or wine price of R41.40 (9) which is 750ml of R 55.20 (8) per litre.

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 liter⁶. 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

⁶ 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 142⁷ per ton and bulk wine as the above R 5.35².

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 you 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.

⁷ 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.⁸ 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.

⁸ *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 2.4 Concern Causal Loop(Draft)

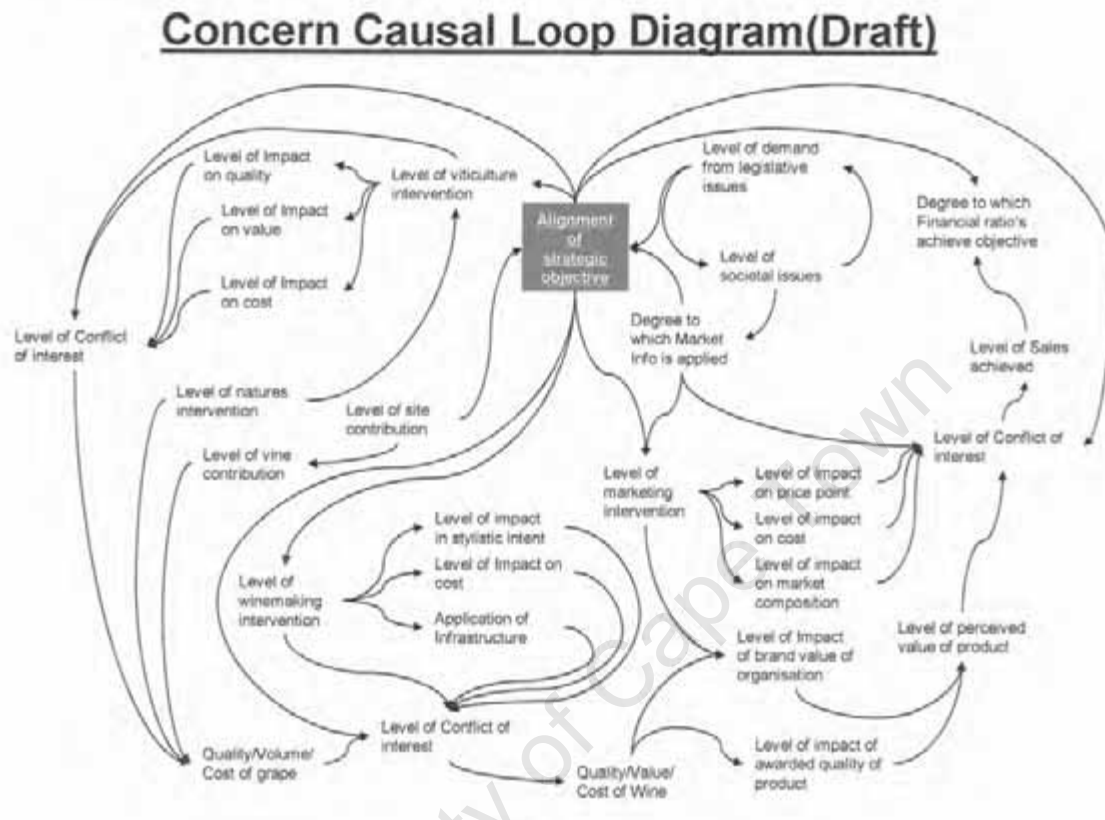
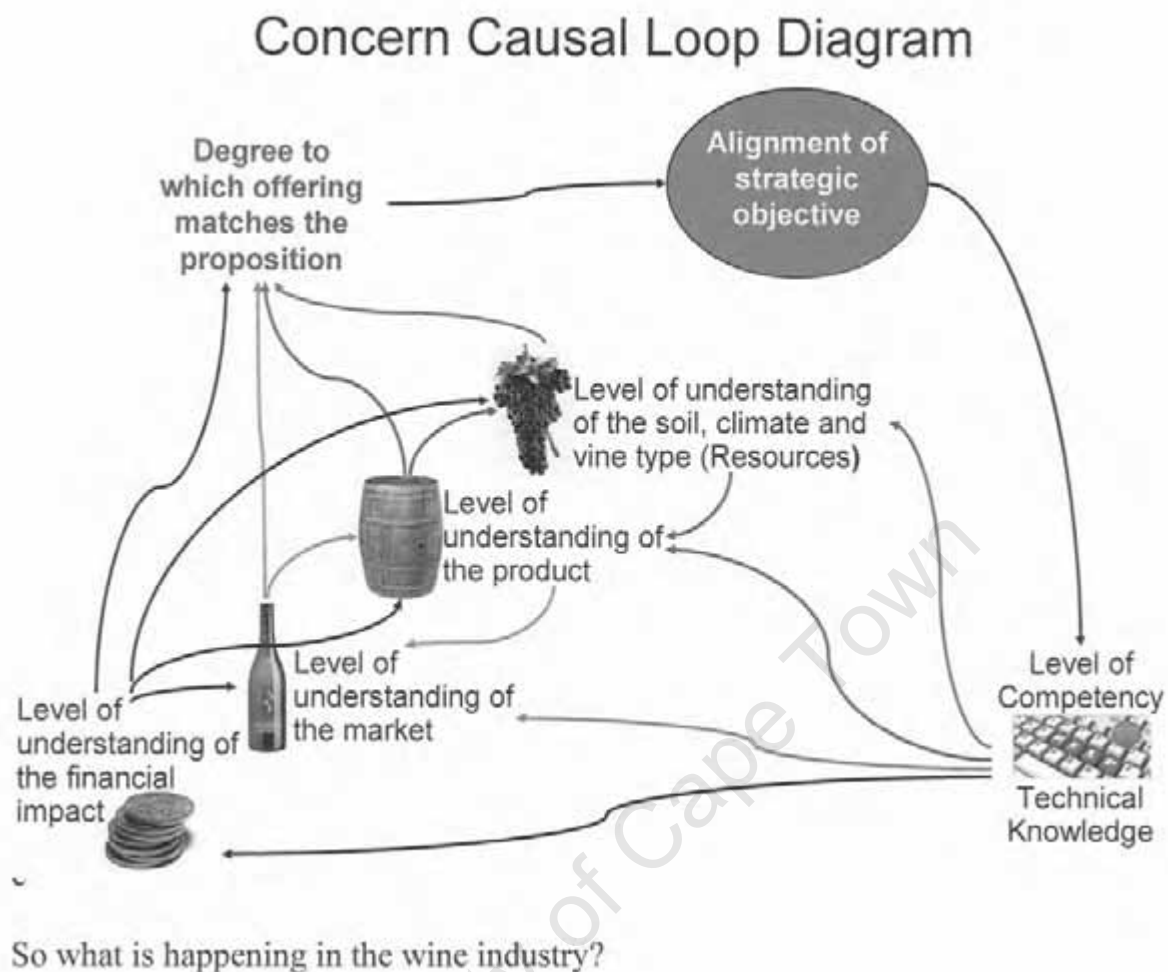


Figure 2.2 reflects the complexity of what we have to deal with in the wine industry. There are so many variables involved and by adding personal interest of individuals to it, it becomes a real thriller.

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).

Figure 2.5 Concern causal loop diagram



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.

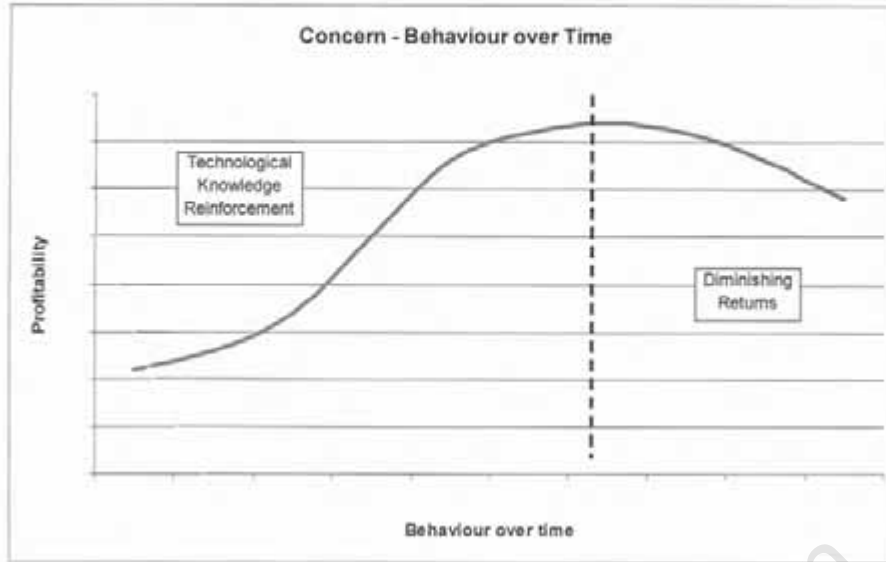
The expectation from the farmer however still exists for 'information' to base business planning and management decisions on. The once a year meeting to discuss the result of trading, stock valuation and financial position has however become an experience received with mixed feelings as it became a non-negotiable 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.

Figure 2.6 Concern – Behaviour over time



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"⁹. 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".¹⁰

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

⁹ Robert C. Merton - Nobel Lecture

¹⁰ Financial Economics - http://www.stanford.edu/~wfsharpe/mia/int/mia_int2.htm

information refers to knowledge of the future that can reduce the uncertainty associated with future sales.

The futurist Alvin Toffler's ¹¹ 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' ² 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.

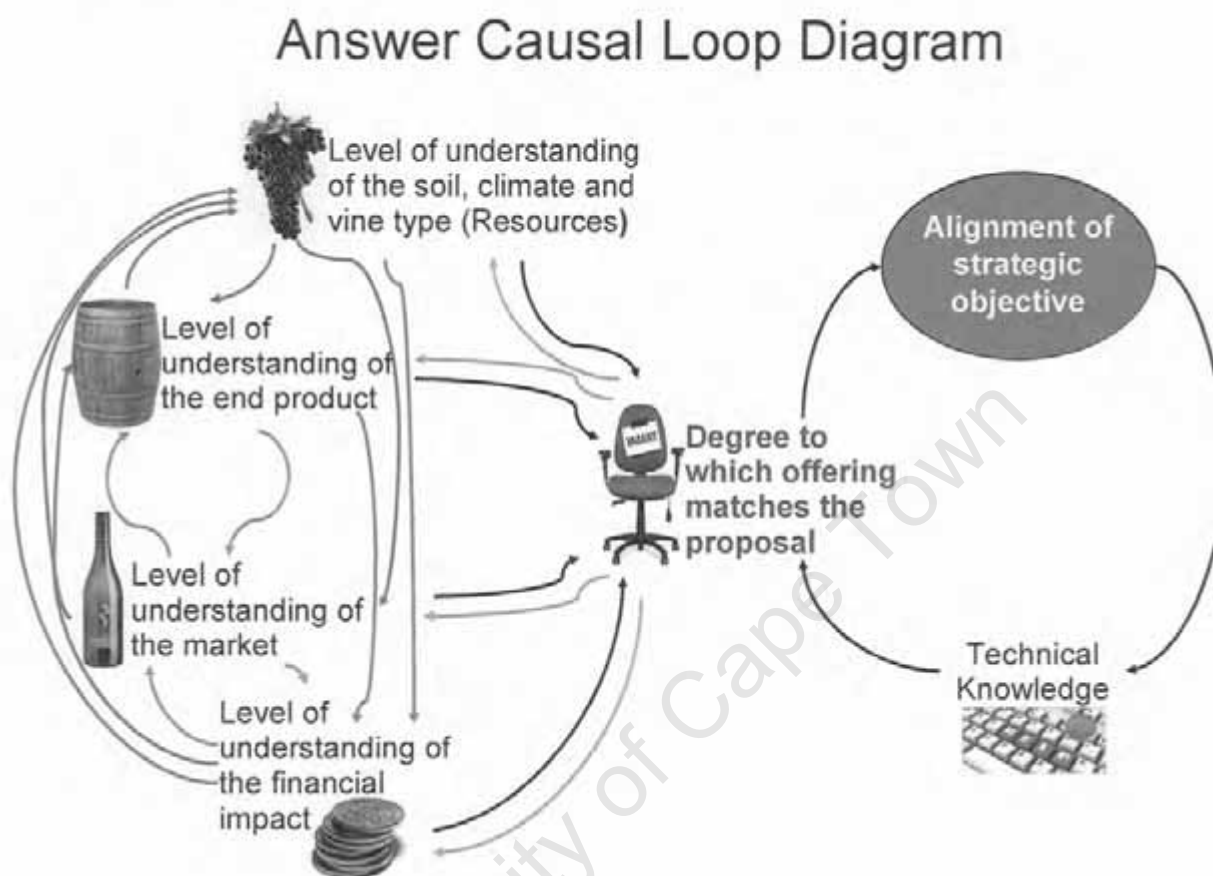
This inclusion of purpose into knowledge brings a new insight to the table. We know our strategic objective. We have some of the best technical skills (knowledge) around. We have a perception of the proposal as we designed it ourselves in the first place with the help of our 'knowledge'. This means we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

Figure 2.7 Answer causal loop diagram



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 Model¹³ (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 society¹⁴.

Figure 2.8 Viable systems model¹⁵

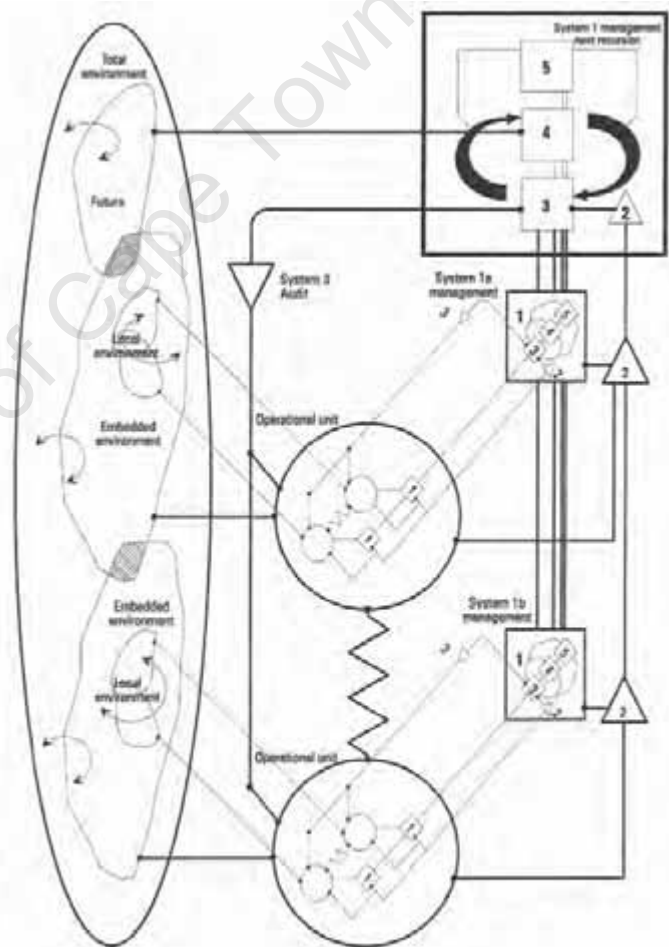
A requirement of VSM is that an organization is a whole system that must be in balance with its environment¹⁶. **Figure 2.8** illustrates this model schematically.

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.

System 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.



¹³ The Viable System Model as a Framework for Understanding Organizations: Raúl Espejo and Antonia Gill

¹⁴ Espejo, R & Harnden, R (eds) 1989, The Viable Systems Model: Interpretations and Applications of Stafford Beer's VSM

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

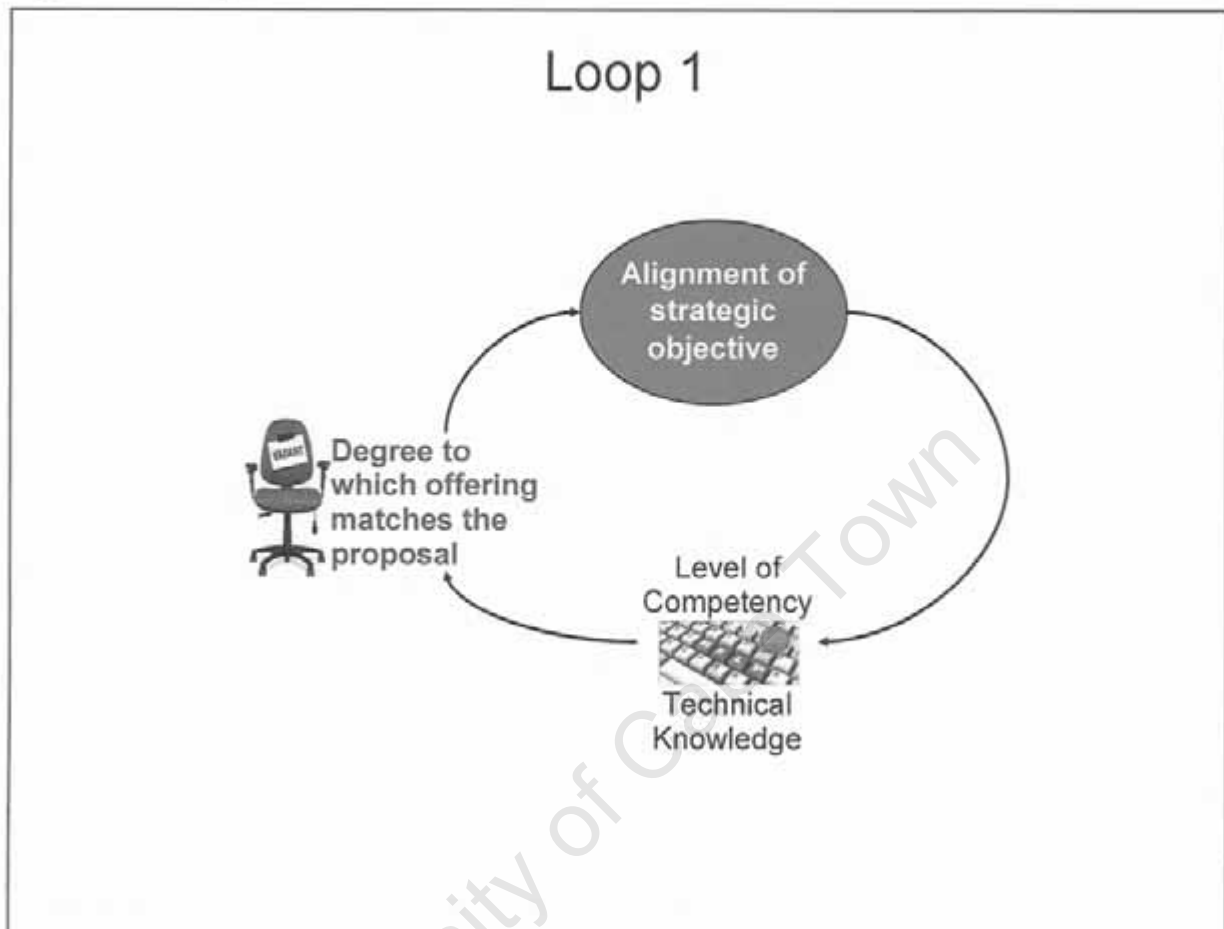
Drawing from the viable systems model we can now position the disciplines at work in their respective categories. Viticulture, winemaking and sales forms part of the primary activities. The financial/accounting disciplines represent the establishing of rules, resources, rights, responsibilities and links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

Figure 2.9 Loop 1



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

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'⁸ 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.

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 definition¹⁹ 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”.

Figure 2.10 Relationship 1



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.

¹⁹ <http://www.businessdictionary.com/definition/intent.html>

2.5.4.2 Altruism

Synergy in structuring a proposal can potentially be achieved by the utilization of the increased levels of understanding of competency at a higher level of altruism.

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.

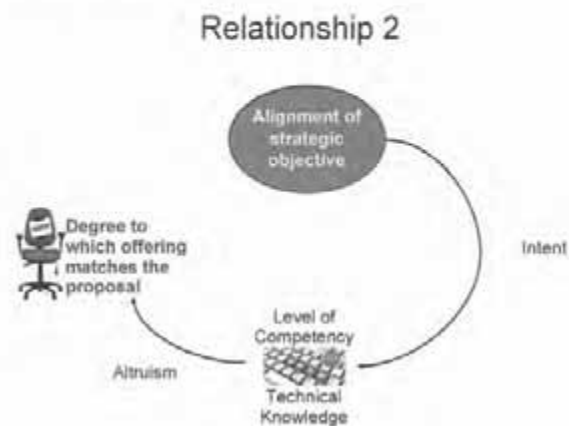
This will have the following benefits for us:

- 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.

Figure 2.11 Relationship 2



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.

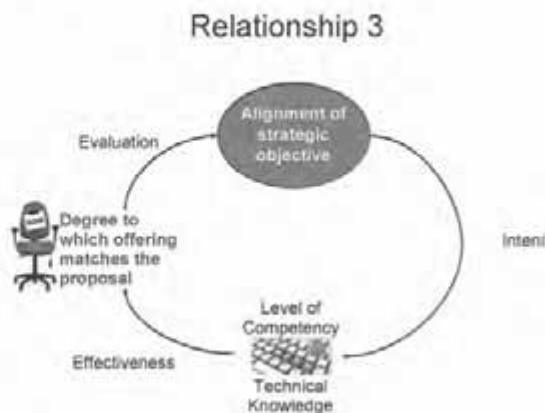
Increased level of strategic alignment with global demands

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.

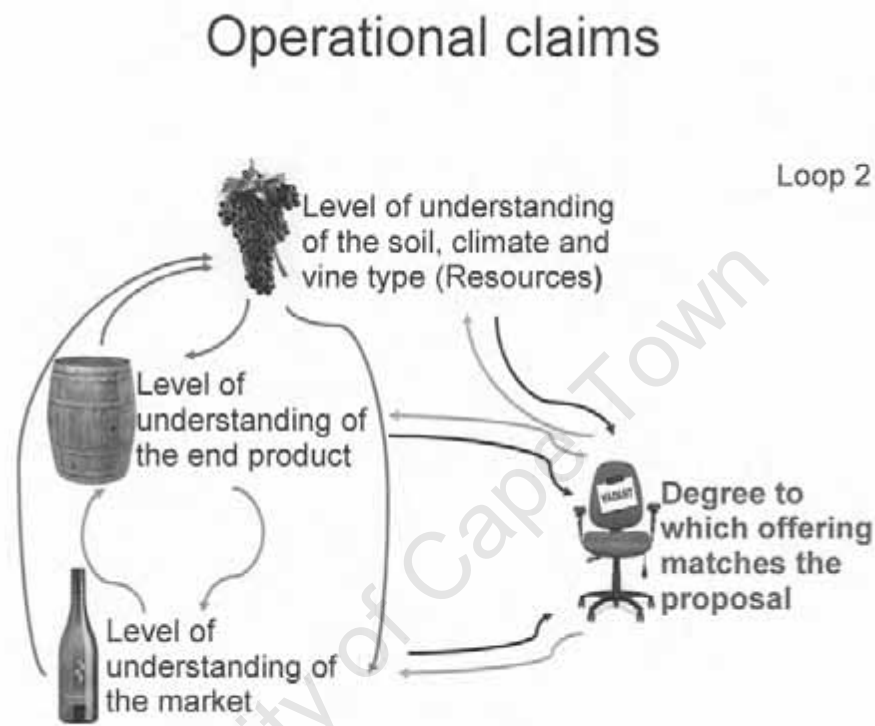
Figure 2.12 Relationship 3



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"²⁰ in which he specifically emphasized the Steven Covey concept, "Begin with the end in mind".²¹ 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.

²⁰ Phillip Freese, Tasting the Vineyard, 2008

²¹ The 7 Habits of Highly Effective People, Stephen R. Covey,

Figure 2.14 Ton per hectare

TON PER HECTARE PARAMETERS							
CULT ID	CULT CODE	OPTION	TON / HA QUALITY 1	TON / HA QUALITY 2	TON / HA QUALITY 3	TON / HA QUALITY 4	TON / HA QUALITY 5
Cul01	Grenache Blanc	3	5.00	6.00	12.00	15.00	20.00
Cul02	Cabernet Franc	3	5.00	6.50	12.00	15.00	20.00
Cul03	Cabernet Sauvignon	3	5.00	7.50	12.00	15.00	20.00
Cul04	Chardonnay	3	5.00	5.00	10.00	15.00	20.00
Cul05	Grenache	3	5.00	10.00	12.00	15.00	20.00

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 fore cast. QLY1 thus represents year 1 etc.

Figure 2.15 Quality

Cabernet Sauvignon		Cul03		38.252											
FarmName	BlockCode	PlantYear	Cultivar	Size(Ha)	QLY1	QLY2	QLY3	QLY4	QLY5	QLY6	QLY7	QLY8	QLY9	QLY10	QLY
1	LA01A	1990	Cul03	1.787	2	2	2	2	2	2	2	2	2	2	
1	LA01C PB	1990	Cul03	1.937	1	1	1	1	1	1	1	1	1	1	
1	LA01B	1990	Cul03	1.787	2	2	2	2	2	2	2	2	2	2	
1	LA01D	1990	Cul03	0.330	2	2	2	2	2	2	2	2	2	2	

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 tons per hectare X 110% = 8.25 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.

Figure 2.16 Harvest introduction

HARVEST PRODUCTION INTRODUCTION								
YEAR	OPTIONS	1	2	3	4	5	6	7
HARVEST INTRO	2	0%	0%	30%	70%	100%	100%	100%

YEARS DEEMED BEFORE BLOCK WILL BE IN FULL PRODUCTION	5
LIFESPAN	25

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.

Figure 2.17 Cost per hectare

VINEYARD COSTING							
3) COST PER HECTARE							
PRODUCTION COST	2010	2011	2012	2013	2014	2015	2016
NON PRODUCTIVE	1,105,459	1,227,059	1,325,224	1,417,990	1,517,249	1,608,284	1,704,781
PRODUCTIVE	9,289,744	10,982,711	11,861,327	12,691,820	13,462,994	13,253,761	13,434,591
COST OF PRODUCTION	10,395,203	12,209,770	13,186,552	14,109,810	14,980,243	14,862,046	15,139,373
INFLATION FIGURE		11%	8%	7%	7%	6%	6%
QUALITY LEVEL 1 HECTARES	3.19	3.19	3.19	3.19	1.94	1.94	-
QUALITY LEVEL 2 HECTARES	146.60	141.85	141.85	141.85	141.85	131.60	127.70
QUALITY LEVEL 3 HECTARES	-	-	-	-	-	-	-
QUALITY LEVEL 4 HECTARES	-	-	-	-	-	-	-
QUALITY LEVEL 5 HECTARES	-	-	-	-	-	-	-
HECTARES IN PRODUCTION	149.79	145.04	145.04	145.04	143.78	133.54	127.70
HECTARES %	100.0%	96.8%	96.8%	96.8%	96.0%	89.2%	85.3%
COST PER HECTARE	68,220	75,724	81,782	87,506	93,632	99,250	105,205

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*.

Figure 2.18 Price per ton

GRAPE PRODUCTION : PRICE PER TON							
Quality 2	2010	2011	2012	2013	2014	2015	2016
Ton per Hectare	68,220	75,724	81,782	87,506	93,632	99,250	105,205
Grenache Blanc	11,370	12,621	13,630	14,584	15,605	16,542	17,534
Cabernet Franc	9,096	10,097	10,904	11,668	12,484	13,233	14,027
Cabernet Sauvignon	10,495	11,650	12,582	13,463	14,405	15,269	16,185
Chardonnay	13,644	15,145	16,356	17,501	18,726	19,850	21,041
Grenache	6,822	7,572	8,178	8,751	9,363	9,925	10,520
Malbec	9,096	10,097	10,904	11,668	12,484	13,233	14,027
Merlot	8,026	8,909	9,621	10,295	11,016	11,676	12,377
Mourvandre	6,822	7,572	8,178	8,751	9,363	9,925	10,520

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

LITER PER TON PRESSED	
Control	Update

B

CULT ID	CULT CODE	OPTION	L / TON Q1	L / TON Q2	L / TON Q3	L / TON Q4	L / TON Q5
Cul01	CBL	3	650	660	670	680	700
Cul02	CF	3	610	635	650	650	700
Cul03	CS	3	610	635	650	650	700
Cul04	CY	3	635	650	660	680	700
Cul05	GR	3	650	660	670	680	700

e

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.

Figure 2.20 Production losses per month

LITER PER TON LOSS DURING PROCESSING							
CULT ID	CULT CODE	OPTION	L% / Month Q1	L% / Month Q2	L% / Month Q3	L% / Month Q4	L% / Month Q5
Cul01	CBL	2	0.50%	0.50%	0.50%	0.50%	0.50%
Cul02	CF	2	0.50%	0.50%	0.50%	0.50%	0.50%
Cul03	CS	2	0.50%	0.50%	0.50%	0.50%	0.50%
Cul04	CY	2	0.50%	0.50%	0.50%	0.50%	0.50%
Cul05	GR	2	0.50%	0.50%	0.50%	0.50%	0.50%

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.

Figure 2.21 Timeline

BRAND 1	PRODUCT CODE	Single Vineyard	OPTION	CASES x	BOTTLE SIZE	HARVEST MONTH	HARVEST TO BULK (MONTHS)	BULK TO BOTTLING (MONTHS)	BOTTLING TO PACKING (MONTHS)	PACKING TO RELEASE (MONTHS)	SALES PERIOD (MONTHS)	SALES SIZE
B1PRODUCT 1	B1P01	Five Soldiers	2	6	0.750	3	18	2	18	1	12	12
B1PRODUCT 2	B1P02	Peter Barlow Magnum	2	4	1.500	4	20	2	18	1	12	4
B1PRODUCT 3	B1P03	Peter Barlow	2	6	0.750	4	20	2	18	1	12	12
B1PRODUCT 4	B1P04	Rag Nicholson	2	6	0.750	3	20	1	18	1	12	12

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.

Figure 2.22 New wood %

BARREL COSTS PER QUALITY PER BARREL TYPE PER LITER															
					% WOOD PER BARREL TYPE										
Quality 2 Cabernet Sauvignon	Cul03	Qualit y	Barrel Size	Barrel Cost	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
Cabernet Sauvignon	Cul03	2	225	100%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%

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 x 6 + 7250 x 2) = R 55 000

Price per liter of new wood (55000 - (225 x 8)) = R 30.56 per liter

Price per liter added to batch (30.56 x 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.

Figure 2.23 Blends

BRAND 2: Rustenberg Blending								
HARVEST YEAR	2010	2011	2012	2013	2014	2015	2016	
John X Merriman®	2013	2014	2015	2016	2017	2018	2019	
B1W01: WB1CAB - Cabernet Sauvignon								
B1W02: WB1CY - Chardonnay								
B1W03: WB15YR - Syrah								
B1W04: WB1W04 -								
B1W05: WB1W05 -								
B1W06: WB1W06 -								
B1W07: WB1W07 -								
B1W08: WB1W08 -								
B1W09: WB1W09 -								
B1W10: WB1W10 -								
B2W01: WB2CAB - CabSauv	65%	65%	65%	65%	65%	65%	65%	65%
B2W02: WB2CY - Chard								
B2W03: WB2MER - Merlot	25%	25%	25%	25%	25%	25%	25%	25%
B2W04: WB2MAL - Malbec	2%	2%	2%	2%	2%	2%	2%	2%
B2W05: WB2CF - CabFranc	4%	4%	4%	4%	4%	4%	4%	4%
B2W06: WB2ROU - Rousanne								
B2W07: WB2SHZ - Shiraz								
B2W08: WB2PV - Petit Verdot	4%	4%	4%	4%	4%	4%	4%	4%
B2W09: WB2WHT - White Blend								
B2W10: WB2SBL - Sauvignon Blanc								
B3W01: WB3CAB - CabSauv								
B3W02: WB3W02 -								
B3W03: WB3MER - Merlot								
B3W04: WB3MAL - Malbec								
B3W05: WB3CF - CabFranc								
B3W06: WB3W06 -								
B3W07: WB3W07 -								
B3W08: WB3PV - Petit Verdot								
:-								
:-								
:-								
:-								
:-								
:-								
:-								
B2P03	100%	100%	100%	100%	100%	100%	100%	100%

Figure 2.25 Cellar cost allocation

Cabernet Sauvignon	Vintage	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	TOTAL
Cul03	2010	-	-	-	-	-	-	-	-	-	20,061	20,061	20,061	60,182
Months in Cellar	2009	19,364	19,364	19,364	19,364	19,364	19,364	19,364	19,364	19,364	19,364	19,364	19,364	232,368
20	2008	19,500	19,500	19,500	19,500	19,500	-	-	-	-	-	-	-	97,500
	2007	-	-	-	-	-	-	-	-	-	-	-	-	-
Liters		38,864	38,864	38,864	38,864	38,864	19,364	19,364	19,364	19,364	39,425	39,425	39,425	390,060

Vintage	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	TOTAL
2010	-	-	-	-	-	-	-	-	-	0.64	0.64	0.64	1.93
2009	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	7.73
2008	0.54	0.54	0.54	0.54	0.54	-	-	-	-	-	-	-	3.22
2007	-	-	-	-	-	-	-	-	-	-	-	-	-
PRICE PER LIT	1.29	1.29	1.29	1.29	1.29	0.64	0.64	0.64	0.64	1.29	1.29	1.29	12.88

Vintage	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	TOTAL
2010	-	-	-	-	-	-	-	-	-	12,917	12,917	12,917	38,752
2009	12,469	12,469	12,469	12,469	12,469	12,469	12,469	12,469	12,469	12,469	12,469	12,469	149,624
2008	12,556	12,556	12,556	12,556	12,556	-	-	-	-	-	-	-	62,781
2007	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL COS	25,025	25,025	25,025	25,025	25,025	12,469	12,469	12,469	12,469	25,386	25,386	25,386	251,157

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 winery. 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 thereof. 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*

[illegible]

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

MARKET	CODE	B2P01	Chardonnay	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cellardoor	1	B2P01	Chardonnay	900	900	900	900	900	900	900	900	900	900
South Africa	2	B2P01	Chardonnay	1250	1,750	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,250
UK	3	B2P01	Chardonnay	1350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350
USA	4	B2P01	Chardonnay	1350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350
Europe	6	B2P01	Chardonnay	1220	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
Other	15	B2P01	Chardonnay	900	900	900	900	900	900	900	900	900	900
TOTAL				6,970	7,850	8,550	8,550	8,550	8,550	8,550	8,550	8,550	8,550

@ COST	CODE	B2P01	Chardonnay	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Reserve	95	B2P01	Chardonnay	450	450	450	450	450	450	450	450	450	450
TOTAL				450	450	450	450	450	450	450	450	450	450

GRAND TOTAL				7,420	8,300	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000
				7,420	8,300	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000

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

Figure 2.28 Pricing Strategy

MARKET	MARKET CODE	Chardonnay	B2P01	CURRENCY	2010	2011	2012	2013	2014	2015	2016
Cellardoor	1	Chardonnay	B2P01	R	118.42	124.34	130.56	137.09	143.94	151.14	168.69
South Africa	2	Chardonnay	B2P01	R	66.61	69.94	73.44	77.11	80.96	85.01	89.28
UK	3	Chardonnay	B2P01	£	66.63	68.62	70.68	72.80	74.99	77.34	79.55
USA	4	Chardonnay	B2P01	\$	66.80	68.60	70.66	72.78	74.96	77.21	79.52
Europe	6	Chardonnay	B2P01	€	66.59	68.58	70.64	72.76	74.84	77.19	79.51
Other	15	Chardonnay	B2P01	R	66.61	68.61	70.67	72.79	74.97	77.22	79.54

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

	MARKETS	CURR	OPTION	2010	2011	2012	2013	2014	2015	2016
1	Cellardoor	R	3	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2	South Africa	R	3	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3	UK	£	3	12.50	12.50	12.50	12.50	12.50	12.50	12.50
4	USA	\$	3	7.50	7.50	7.50	7.50	7.50	7.50	7.50
6	Europe	€	3	11.50	11.50	11.50	11.50	11.50	11.50	11.50
15	Other	R	3	1.00	1.00	1.00	1.00	1.00	1.00	1.00

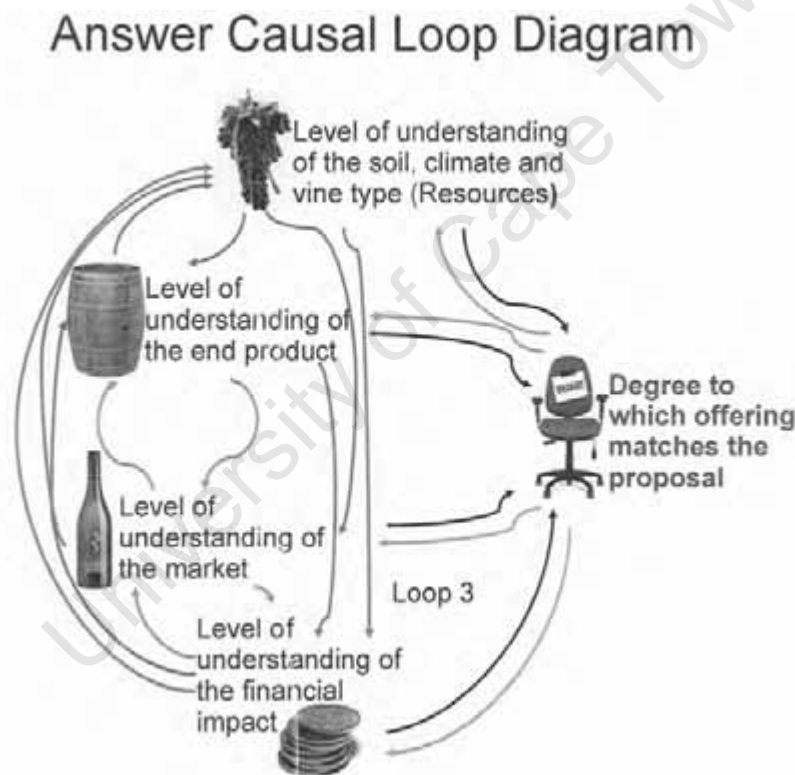
By understanding the components that is manageable and measurable in the marketing field allows the marketer to properly plan his business. Firstly they understand what has to be achieved as an output. A full understanding of price points and market allocation aligns the offering with the proposal.

Marketing expences 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.

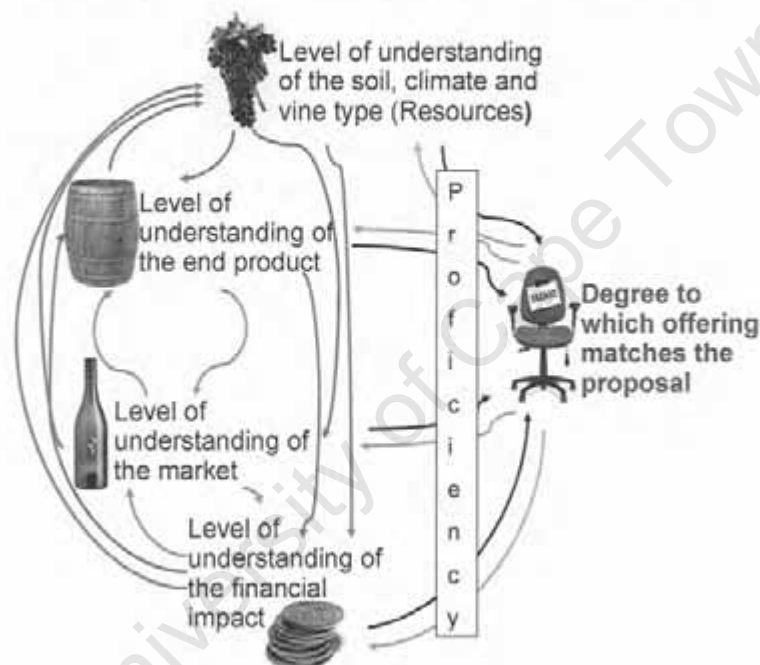
2.7.1 Relationship between variables

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**.

Figure 2.31 Answer Causal Loop Diagram

Answer Causal Loop Diagram



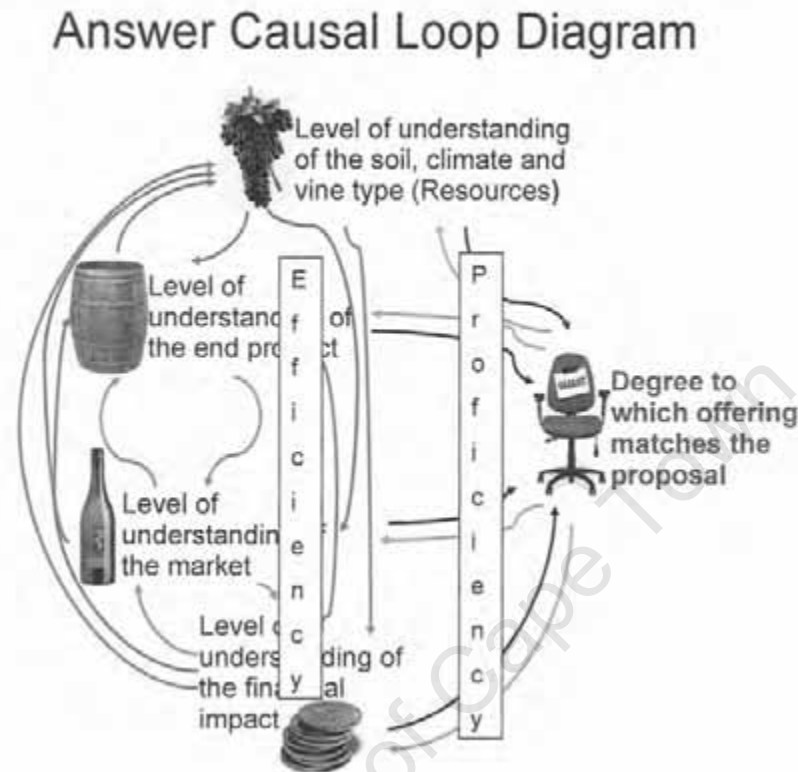
Proficiency is defined as the skillfulness in the command of fundamentals deriving from practice and familiarity; it includes such qualities as skill, ability, know-how, talent, facility, craft, expertise, competence, accomplishment, mastery, knack, aptitude, dexterity and expertness.

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



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 performance²². 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.

Figure 2.33 Proposal

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.

Figure 2.34 Answer Causal Loop Diagram

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.

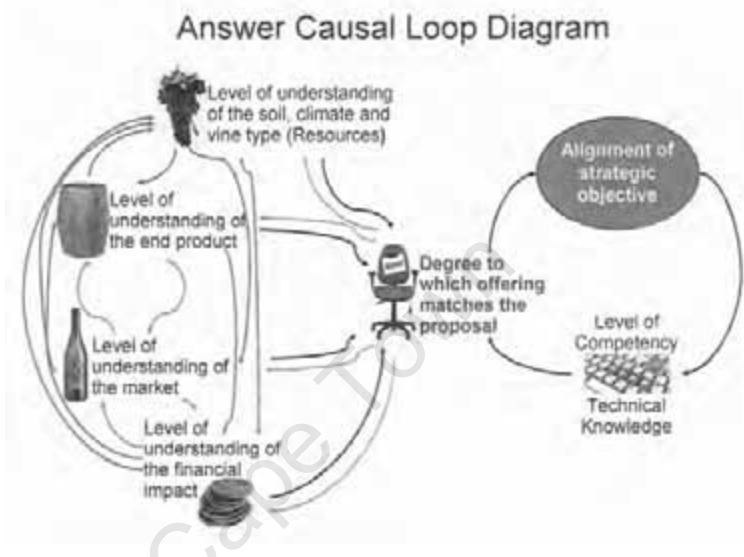
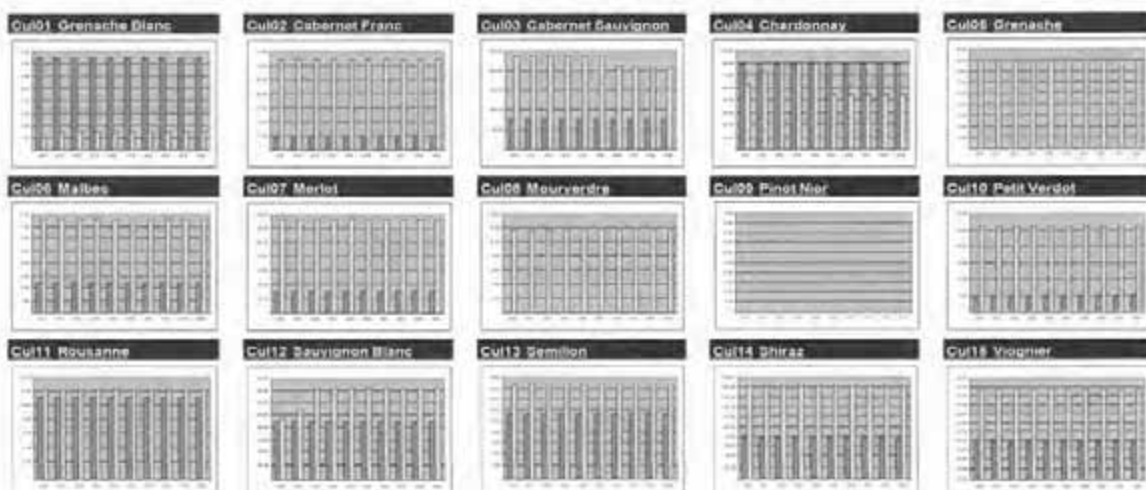
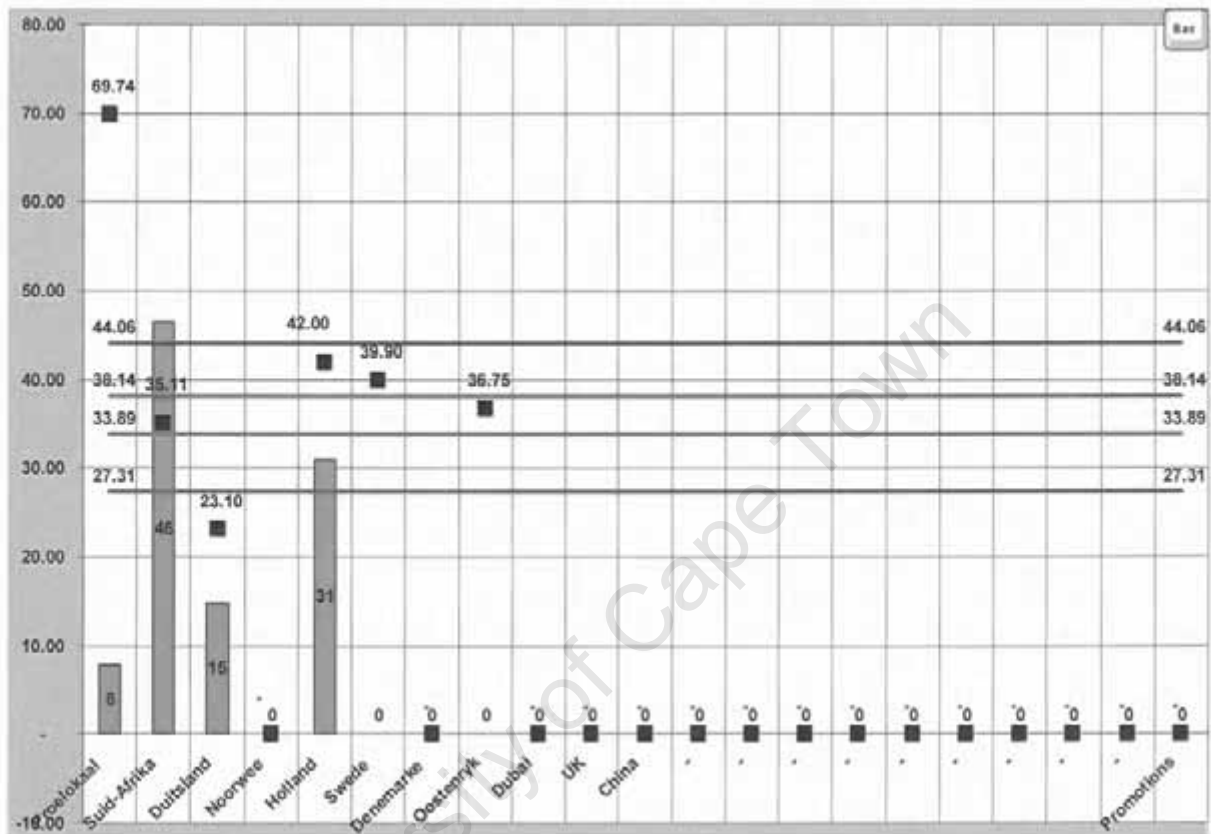


Figure 2.35 Supply and demand of grapes



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.

Figure 2.36 Market analysis of a product per market



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.

Figure 2.37 Income Forecast

WINES (PTY) LTD

FORECASTED INCOME STATEMENTS

	2010	2011	2012
Wine Sales	7,884,217	9,846,771	10,937,757
Wine Cost of Sales	5,613,070	5,734,576	5,949,858
WINE GP	2,251,147	4,112,194	4,987,899
	28.6%	41.8%	45.8%
Other Sales	588,582	705,394	874,877
Other cost	631,499	761,921	948,695
OTHER GP	- 42,917	- 56,527	- 73,818
GROSS PROFIT	2,208,229	4,055,667	4,914,081
<u>MARKETING EXPENCES</u>	1,752,505	1,945,280	2,100,903
Cellardoor	252,930	280,752	303,212
National	1,499,575	1,664,529	1,797,691
International		-	-
NET WINE INCOME	455,725	2,110,387	2,813,178
<u>OTHER EXPENCES</u>	1,024,624	1,086,101	1,172,989
Admin	1,024,624	1,086,101	1,172,989
NET PROFIT BEFORE PRODUCTION VARIANCES	- 568,899	1,024,286	1,640,189
<u>OVER/(UNDER) RECOVERIES IN PRODUCTION</u>	0 -	423,801 -	491,776
Grape	0 -	423,801 -	491,776
Winemaking	-	-	-
Bottling			
EBIT	- 568,899	600,484	1,148,413
<u>FINANCE CHARGES</u>	234,066	220,082	204,324
Interest	234,066	220,082	204,324
EBT	-802,965	380,402	944,089

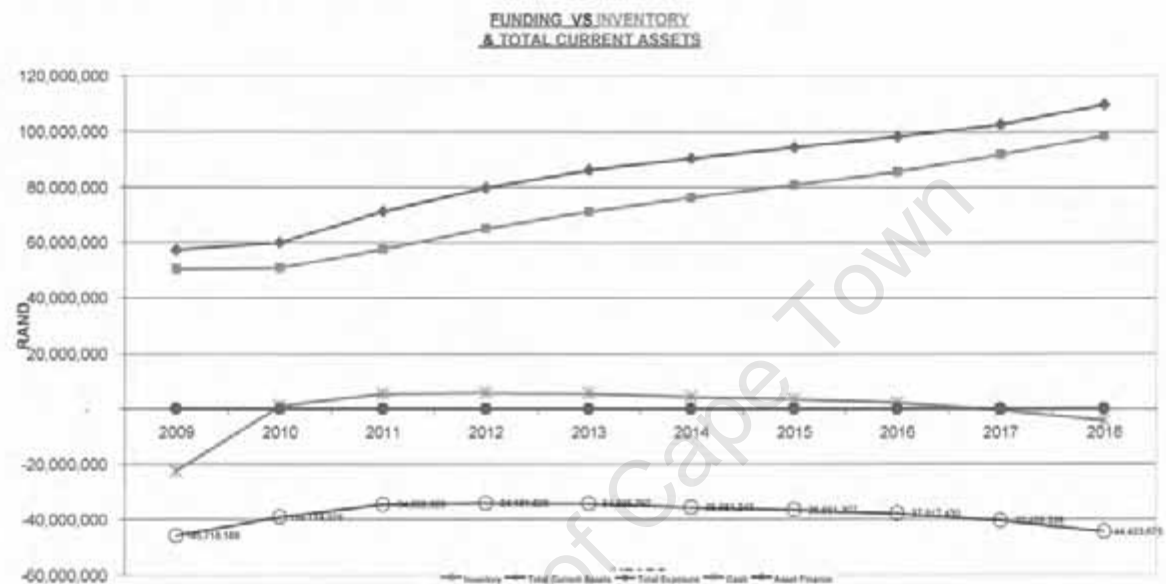
Wine sales will be all bottled and bulk wine sales, while Wine cost of sales will be the correct cost according to the methodology as described above. It represents the intent of the product made. Other sales could be grape sales and the appropriate cost thereof.

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.

Figure 2.38 Cash, funding, inventory, current assets over time



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 safe 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

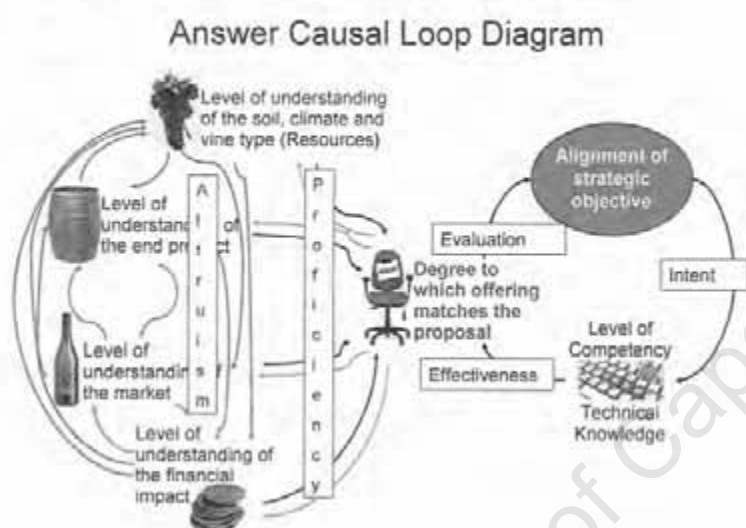
²⁴ Rabobank: The South African wine industry, 2006

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.

Figure 2.39 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 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.

University of Cape Town

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 realism²⁵ 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 inference²⁶ 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 exist and act independently of our descriptions²⁷ and "the world exists independently of the knowing of it,"²⁸

²⁵ http://en.wikipedia.org/wiki/Critical_realism

²⁶ <https://www.det.nsw.edu.au/proflearn/der/htmods/thinking/ladder.html>

²⁷ http://www.uk.geocities.com/balihar_sanghera/carcrealismslides.html

²⁸ <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.²⁹ 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".³⁰ He, together with several other people, produced a book "World views, from fragmentation to integration" that list seven fundamental components of a world view.³¹

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 Principia 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**³².

29 *International Studies Quarterly*, Vol. 44, No. 2 Jun 2000, pp. 213-237

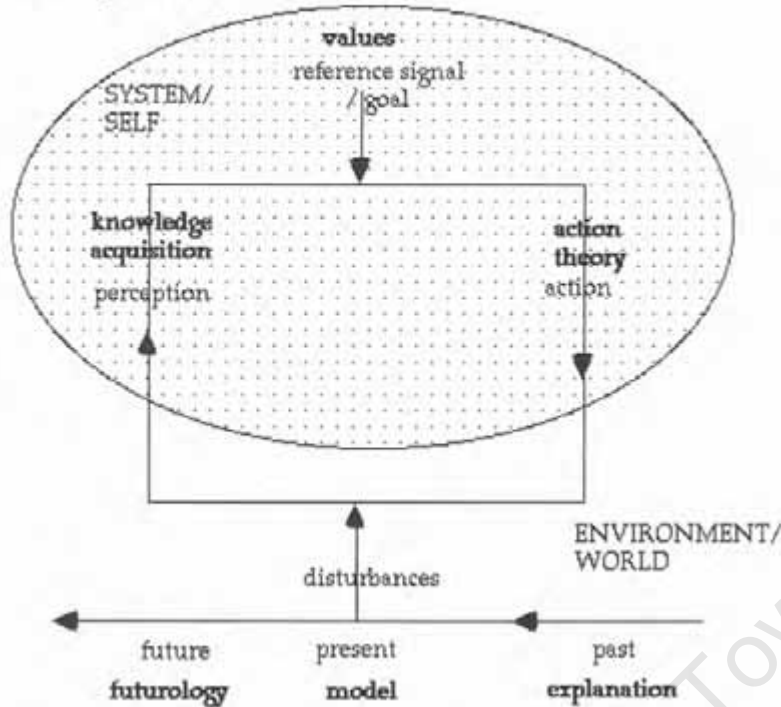
30 <http://pespmcl.vub.ac.be/WORLVIEW.html>

31 <http://pespmcl.vub.ac.be/WORLVIEW.html>

32 Copyright © 1992-2000 Principia Cybernetica

All rights reserved

Figure 3.1 A Cybernetic Model



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.

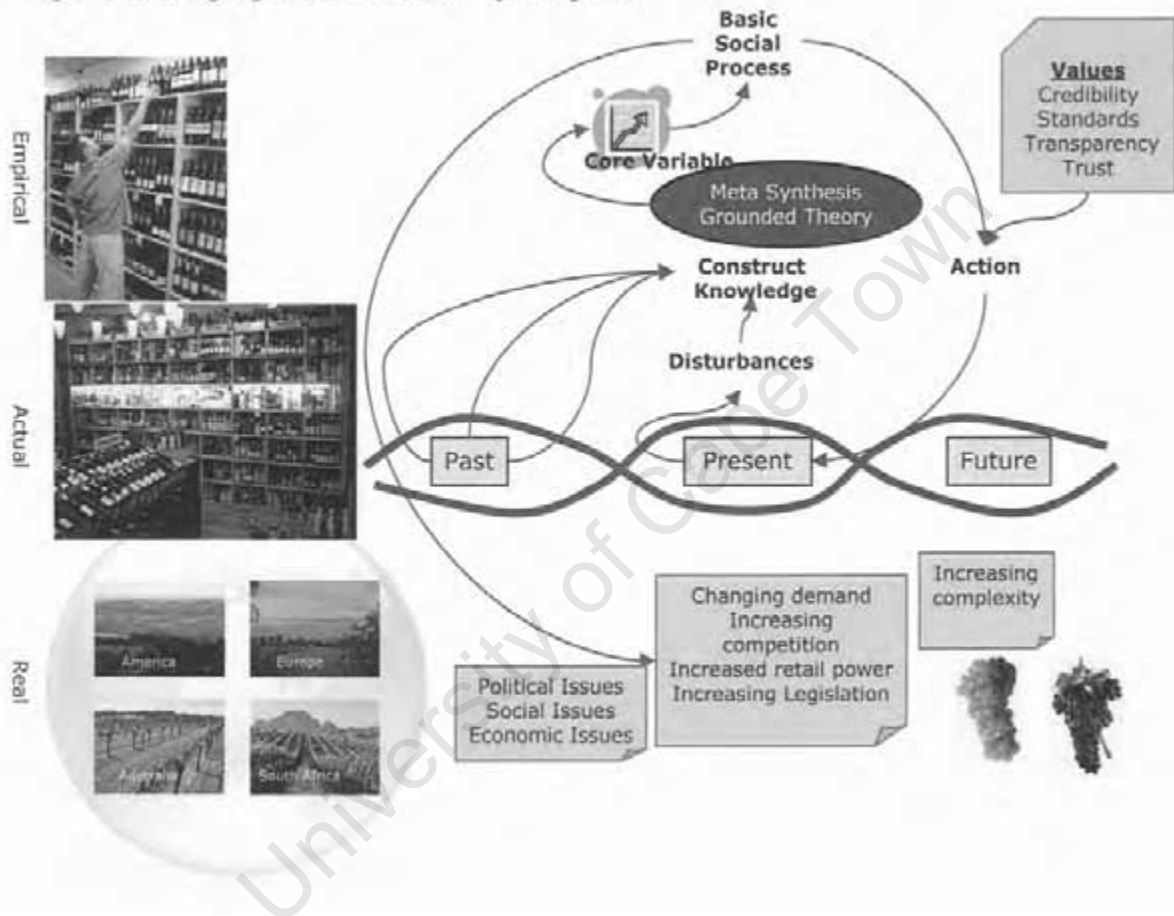
Utilizing this model and theory in building a plan for my research framework provides good validity to the approach followed.

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*.

Figure 3.2 A graphical overview of the plan



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

Empirical



The consumer (what you observe),

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

Actual



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.

Real



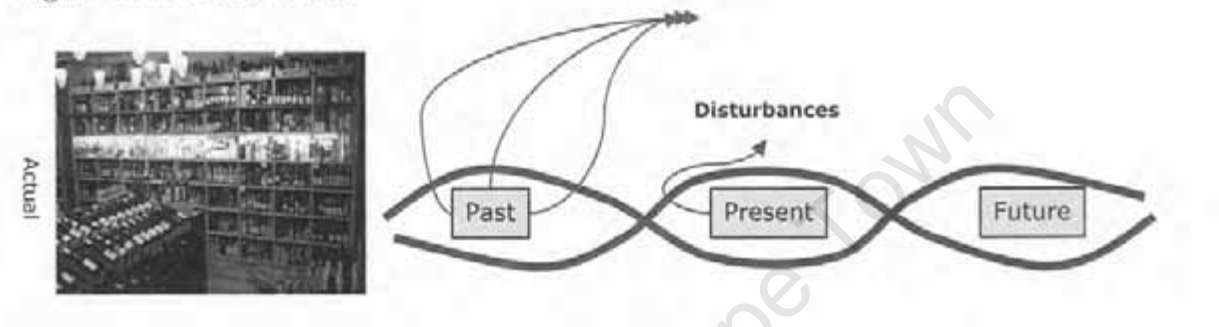
The producers from across the world (we can only know of real things under particular descriptions: i.e., reality is concept-dependent, not concept-determined)

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 study³³, 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.

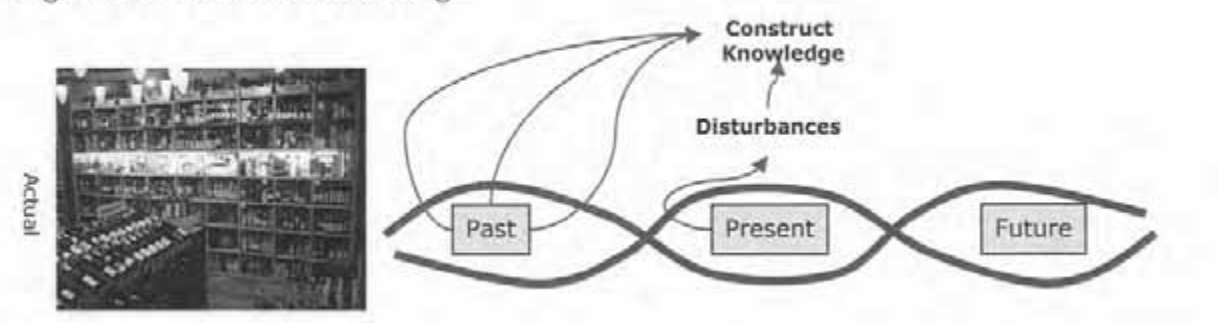
Figure 3.4 Actual world



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.

Figure 3.5 Construct knowledge



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 Lawson³⁴, 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.

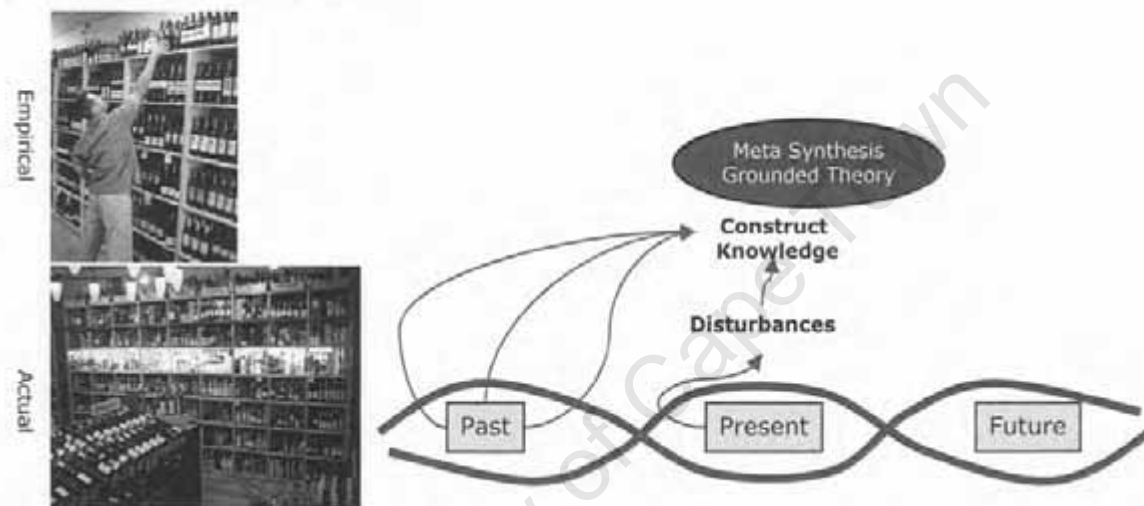
The critical realist views the domain of real causal mechanisms as the appropriate object of economic science, whereas the positivist view is that the reality is exhausted in empirical, i.e. experienced reality. Tony Lawson argues that economics ought to embrace a "social ontology" to include the underlying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

Figure 3.6 Methodology



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.³⁵ The following summary on Grounded Theory was made from ©Academy of Management Journal 2006, Vol. 49, No. 4, 633-642.³⁶ 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

³⁶ ©Academy of Management Journal 2006, Vol. 49, No. 4, 633-642.

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 operations³⁸. 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 literature³⁹. 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 study⁴⁰. Not only is the intention to provide explanations of social phenomena, but also to provide insight to those engaged in the behaviour under investigation⁴¹. Ideally, the primary concerns of social actors are identified and the strategies that can be employed to resolve these concerns are outlined⁴².

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.

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**

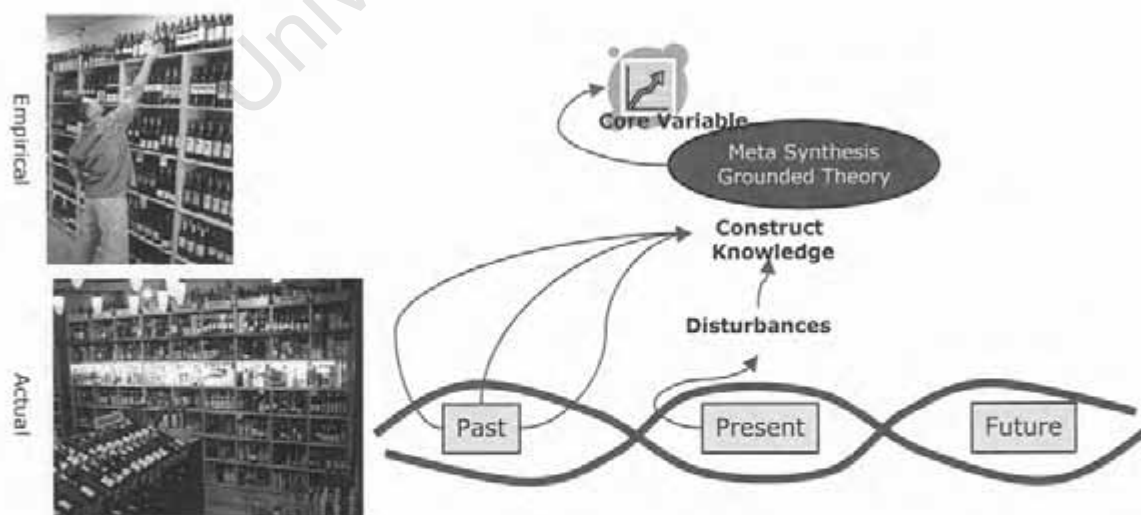
Utilizing the grounded theory in a range of research projects requires a method to amalgamate them into one. The method that will be used is the Meta-synthesis method.

Stern and Harris (1985)⁴³ 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 explanative, seeking to understand and explain phenomena⁴⁴. 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



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'.⁴⁵ It is important to note that a qualitative translation rarely results in a complete state of agreement.

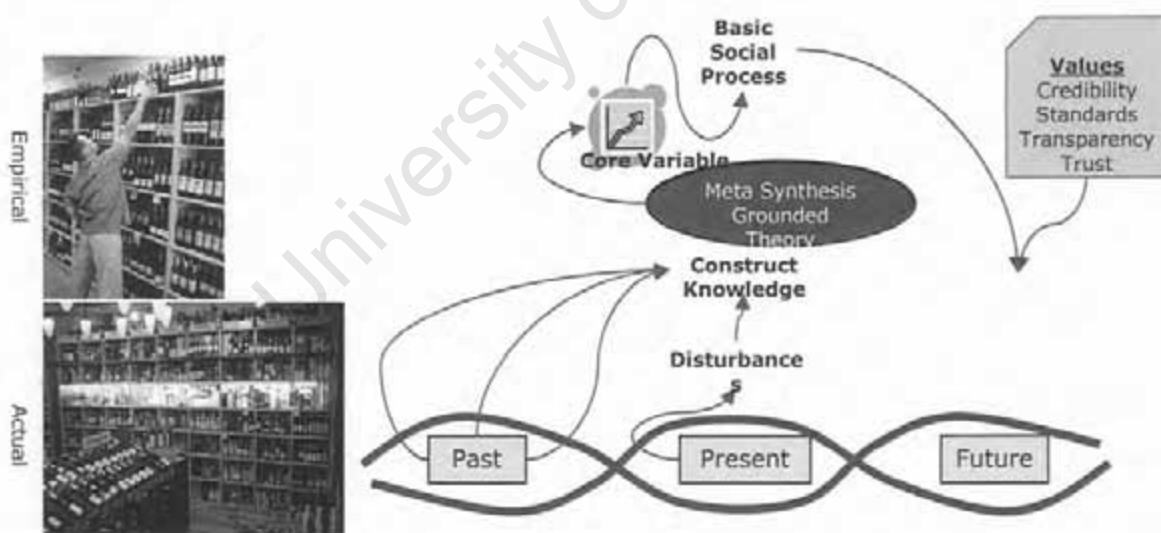
The final phase is to synthesize the translations to explain the more refined meanings, exploratory theories and new concepts. Clusters of metaphors become increasingly more refined and a consensus emerges as the core theme to explain how the whole is greater than the sum of the parts.

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.

Figure 3.8 Values



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

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.

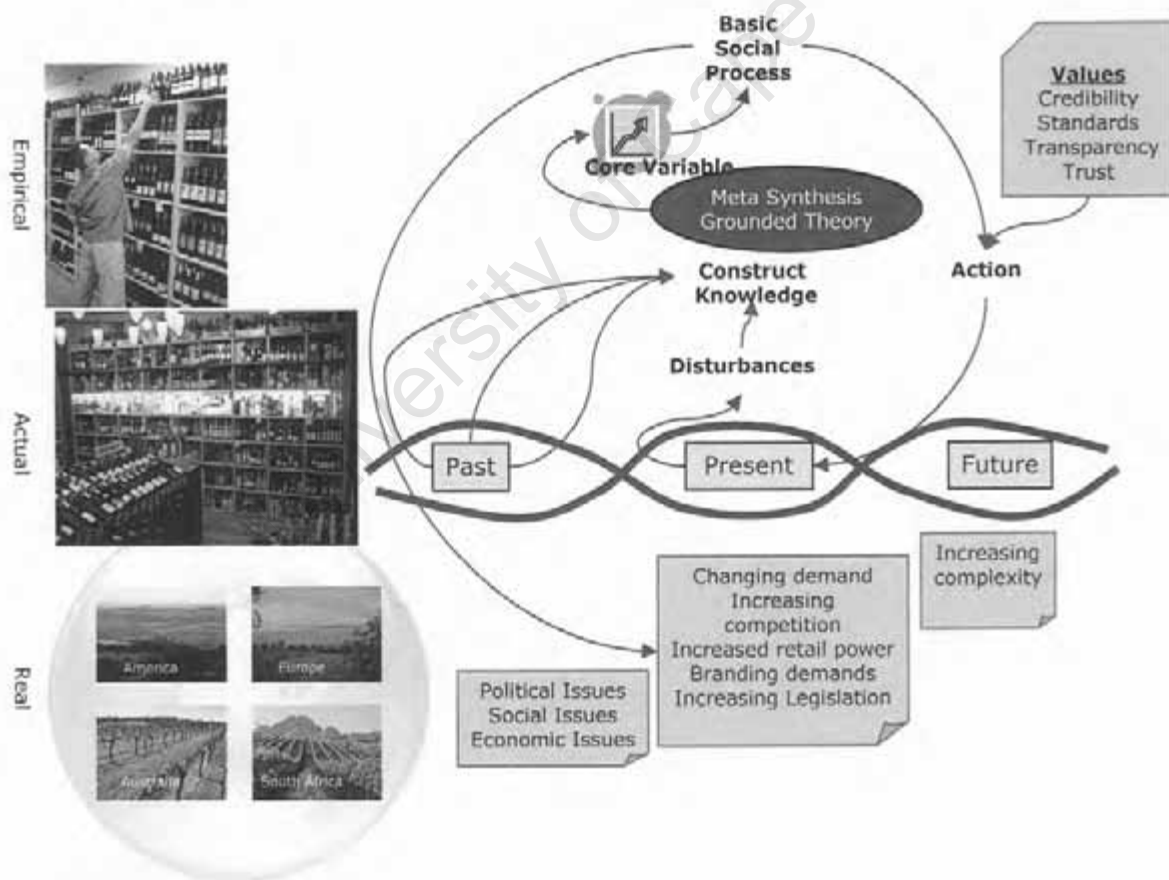
3.6 Action

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 based 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.

Figure 3.9 Action



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.

Wineries basically consist 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 'terroir' 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 develop 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.

⁴⁶ *International Studies Quarterly*, Vol. 44, No. 2 Jun 2000, pp. 213-237

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

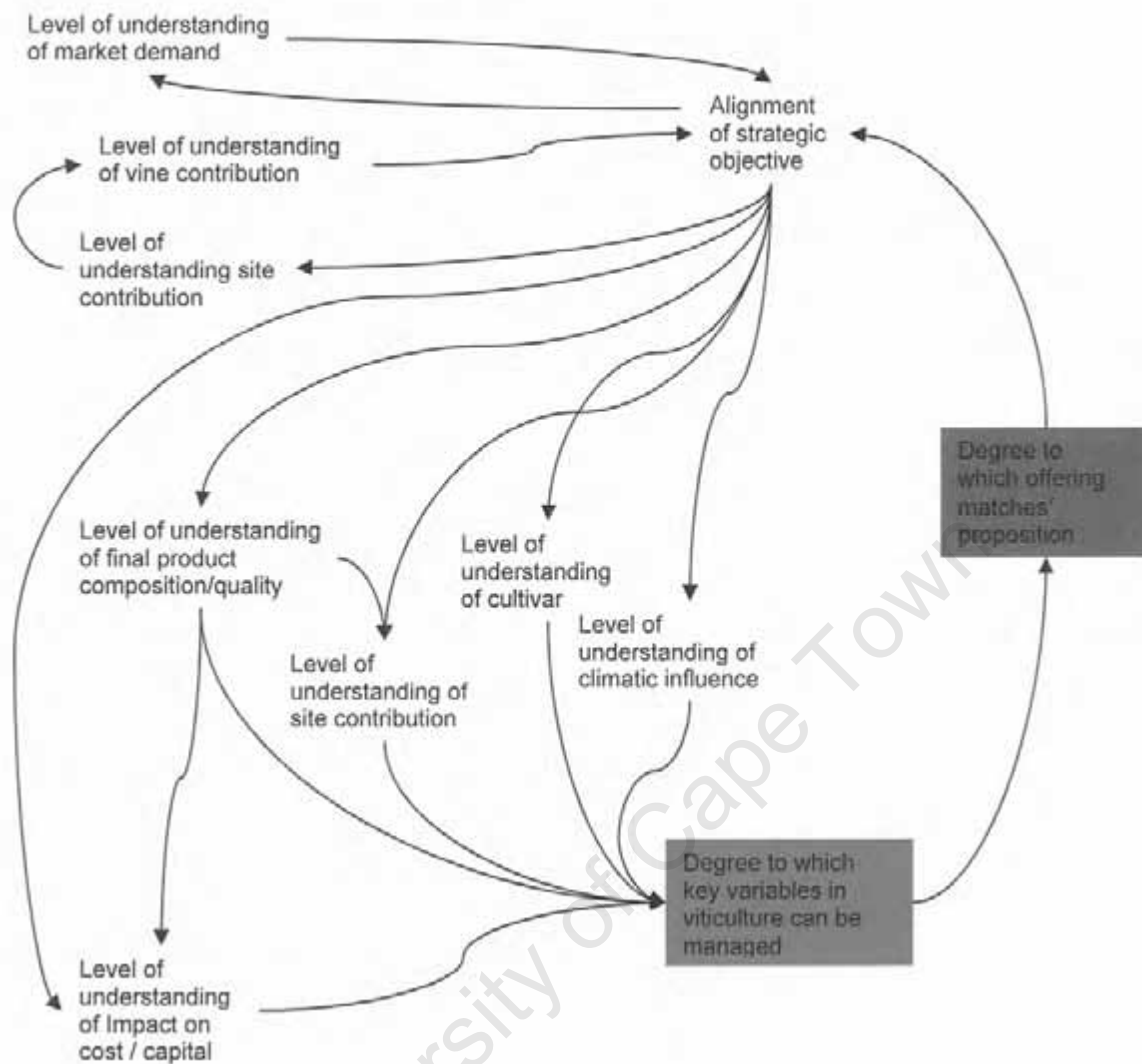
In the pursuit of developing my understanding of the drivers of the key management decision areas in the production of grapes for determining quality, value and cost, my concern is based on the concept of "Begin with the end in mind" ⁴⁹ and therefore the degree to which the offering (produced grape: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

Figure 4.1 Concern causal loop diagram

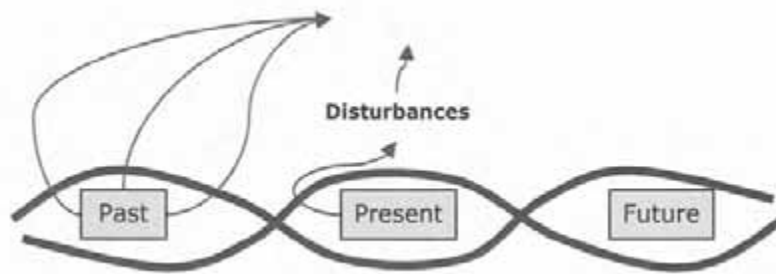


I have to clarify at this point in time that you have to be clear as to the purpose of the study⁵⁰, the issues that must be illuminated and also the practices it could influence. In my scenario the objective is to determine if it is possible to build an economic model to improve the knowledge of the 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.

⁵⁰ Grounded theory in management research, Karen Locke, 2001

Figure 4.2 Actual world



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 receipt 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 observations 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.

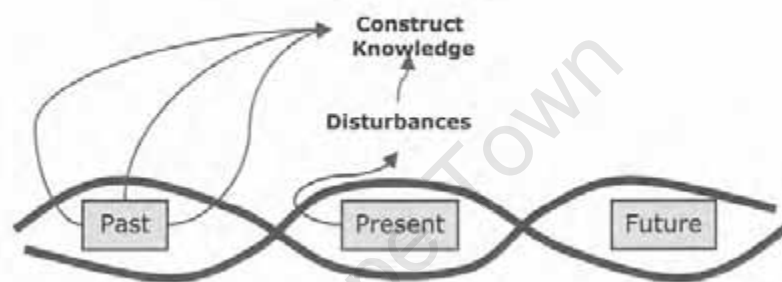
Records: I draw a lot of information from records to determine what type of information would be recorded in the past as this would give an indication of importance. Record keeping in some fields was limited, but very valuable information was gathered in general. Examples of this would be yield, perceived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

Figure 4.3 Construct knowledge



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 comparing⁵¹. 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 realism⁵² 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

⁵² http://en.wikipedia.org/wiki/Critical_realism

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 contrast with the practice of utilizing the average market price.

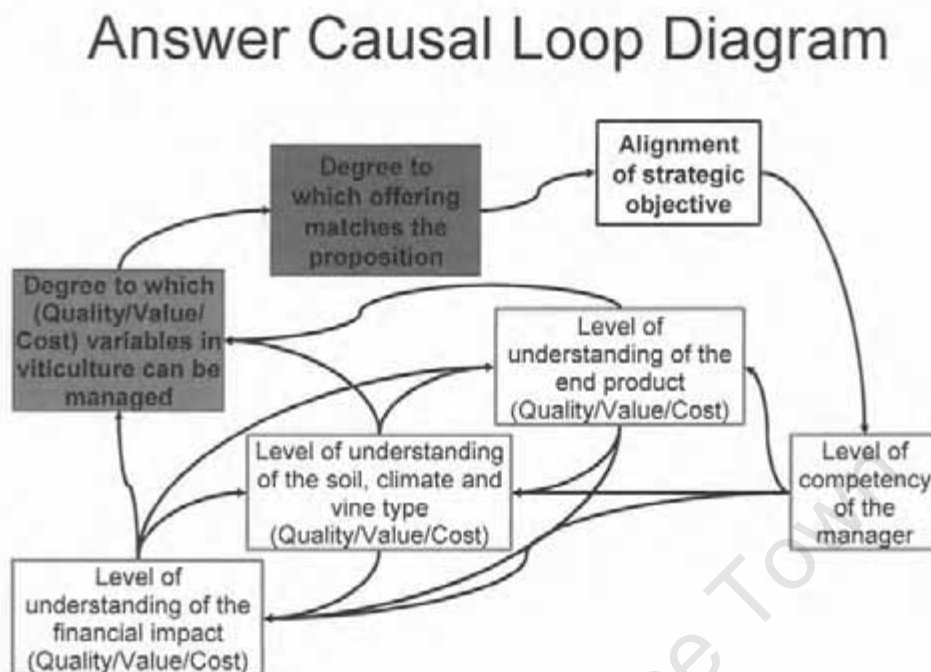
Integrating categories: The aim here was to fully develop our conceptual categories as well as develop the conceptual scheme. This was done by comparing how the conceptual categories may be arranged to clarify the relationship between the categories and their properties. When the categories reach the 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 person⁵³ 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.

53 Competencies in the 21st century. Richard E. Boyatzis. Journal of Management Development Vol. 27 Number 1. 2008 pp. 5-12

Figure 4.4 Answer Causal Loop Diagram



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 literature⁵⁴. 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 study⁵⁵. Not only is the intention to provide explanations of social phenomena, but also to provide insight to those engaged in the behaviour under investigation⁵⁶. 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 outlined⁵⁷.

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.

⁵⁴ Glaser and Strauss, 1967

⁵⁵ Thompson, 1997

⁵⁶ Glaser and Strauss, 1967

⁵⁷ Glaser, 1992

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.

Figure 4.7 Block detail and quality intent

BlockCode	BlockName	PlantYear	Cult Code	RootStock	Clone	NoOfVines	Size(Ha)	VinQY1	VinQY2	VinQY3	VinQY4	VinQY5	VinQY6	VinQY7	VinQY8	VinQY9	VinQY10
F506C.2	FIVE SOLDIERS 06 C.2	2003	QW02	101-14	CF 214	2113	0.921	2	2	2	2	2	2	2	2	2	2
F506C.3	FIVE SOLDIERS 06 C.3	2003	QW02	101-14	CF	159	0.966	2	2	2	2	2	2	2	2	2	2
F506C.1	FIVE SOLDIERS 06 C.1	2003	QW02	R110	CF 623 B	991	0.995	2	2	2	2	2	2	2	2	2	2
W002A	W002A 02 A	1998	QW02	101-14	CF 06	5001	1.875	2	2	2	2	2	2	2	2	2	2
LA03B	LAINGS 03 B	1997	QW03	101-14	CS 18 A	9825	2.566	2	2	2	2	2	2	2	2	2	2
W001C	W001A 01C	1998	QW03	101-14	CS 20 C	891	0.258	2	2	2	2	2	2	2	2	2	2
LA05B	LAINGS 05 B	2001	CW03	101-14	CS 33B	1806	0.858	2	2	2	2	2	2	2	2	2	2
W001A	W001A 01 A	2000	QW03	101-14	CS 33	5799	2.61	2	2	2	2	2	2	2	2	2	2
LA05A	LAINGS 05 A	2001	CW03	101-14	CS 163 C	8213	2.706	2	2	2	2	2	2	2	2	2	2
SP01	SPEKBOOM 01	2000	QW03	101-14	CS 191	11975	4.40	3	3	3	3	3	3	3	3	3	3
W001B	W001A 01B	1998	CW03	101-14	CS 33	891	0.258	2	2	2	2	2	2	2	2	2	2
W003A	W003A 03 A	2002	CW03	101-14	CS 463	1605	0.82	3	3	3	3	3	3	3	3	3	3
W003B	W003A 03 B	2002	CW03	RCM	CS 337	416	0.083	3	3	3	3	3	3	3	3	3	3
LA03C	LAINGS 03 C	1997	CW03	101-14	CS 20 C	3451	1.294	2	2	2	2	2	2	2	2	2	2
LA07	LAINGS 07	2001	CW03	101-14	CS 337	2445	0.915	2	2	2	2	2	2	2	2	2	2
R001C	RUSTENBERG 01C	2002	CW03	101-14	CS 163	533	0.2	3	3	3	3	3	3	3	3	3	3
G002B	GLEN BAWN 02 B	2002	CW03	101-14	CS 163	633	0.2	3	3	3	3	3	3	3	3	3	3
G001D	GLEN BAWN 01 D	2002	CW03	101-14	CS 163	467	0.175	3	3	3	3	3	3	3	3	3	3
R004C	RUSTENBERG 04 C	2002	CW03	101-14	CS 163	1007	0.36	3	3	3	3	3	3	3	3	3	3

Source: Christalball

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.

Figure 4.8 Ton per Hectare per Quality

CULT ID	CULT CODE	OPTION	TON / HA QUALITY 1	TON / HA QUALITY 2	TON / HA QUALITY 3	TON / HA QUALITY 4	TON / HA QUALITY 5
Cul01	Grenache Blanc	3	6.00	10.00	12.00	15.00	20.00
Cul02	Cabernet Franc	3	6.00	10.00	12.00	15.00	20.00
Cul03	Cabernet Sauvignon	3	6.00	10.00	12.00	15.00	20.00
Cul04	Chardonnay	3	6.00	8.00	10.00	15.00	20.00
Cul05	Grenache	3	6.00	10.00	12.00	15.00	20.00
Cul06	Malbec	3	6.00	10.00	12.00	15.00	20.00
Cul07	Merlot	3	6.00	10.00	12.00	15.00	20.00
Cul08	Mourverdre	3	6.00	10.00	12.00	15.00	20.00
Cul09	Pinot Noir	3	6.00	10.00	12.00	15.00	20.00
Cul10	Petit Verdot	3	6.00	10.00	12.00	15.00	20.00
Cul11	Rousanne	3	6.00	10.00	12.00	15.00	20.00
Cul12	Sauvignon Blanc	3	6.00	10.00	12.00	15.00	20.00
Cul13	Semillon	3	6.00	10.00	12.00	15.00	20.00
Cul14	Shiraz	3	6.00	10.00	15.00	18.00	20.00
Cul15	Viognier	3	6.00	10.00	12.00	15.00	20.00

Source: Christalball

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.

Figure 4.9 Fine-tuning each block

BlockCode	BlockName	PlantYear	Cult Code	Size(Ha)	FactorY1	FactorY2	FactorY3	FactorY4	FactorY5	FactorY6	FactorY7
FS08C 2	FIVE SOLDIERS 08 C 2	2003	Cul02	0.951	100%	100%	100%	100%	100%	100%	100%
FS08C 3	FIVE SOLDIERS 08 C 3	2003	Cul02	0.068	100%	100%	100%	100%	100%	100%	100%
FS08C 1	FIVE SOLDIERS 08 C 1	2003	Cul02	0.595	100%	100%	100%	100%	100%	100%	100%
WG02A	WOGGA 02 A	1998	Cul02	1.875	63%	80%	100%	100%	100%	100%	100%
LA03B	LAINGS 03 B	1997	Cul03	2.598	94%	100%	100%	100%	100%	100%	100%
WG01C	WOGGA 01C	1998	Cul03	0.259	100%	100%	100%	100%	100%	100%	100%
LA05B	LAINGS 05 B	2001	Cul03	0.558	100%	100%	100%	100%	100%	100%	100%
WG01A	WOGGA 01 A	2000	Cul03	2.61	100%	100%	100%	100%	100%	100%	100%
LA05A	LAINGS 05 A	2001	Cul03	2.798	100%	100%	100%	100%	100%	100%	100%
SP01	SPEKBOOM 01	2000	Cul03	4.49	100%	100%	100%	100%	100%	100%	100%
WG01B	WOGGA 01B	1998	Cul03	0.259	100%	100%	100%	100%	100%	100%	100%
WG03A	WOGGA 03 A	2002	Cul03	0.32	120%	120%	120%	120%	120%	120%	120%
WG03B	WOGGA 03 B	2002	Cul03	0.083	120%	120%	120%	120%	120%	120%	120%
LA03C	LAINGS 03 C	1997	Cul03	1.294	94%	100%	100%	100%	100%	100%	100%
LA07	LAINGS 07	2001	Cul03	0.915	100%	100%	100%	100%	100%	100%	100%
RU01C	RUSTENBERG 01C	2002	Cul03	0.2	80%	100%	100%	100%	100%	100%	100%
GB02B	GLEN BAWN 02 B	2002	Cul03	0.2	100%	100%	100%	100%	100%	100%	100%
GB01D	GLEN BAWN 01 D	2002	Cul03	0.175	100%	100%	100%	100%	100%	100%	100%
KL04C	KLIPPIES 04 C	2002	Cul03	0.36	60%	75%	80%	100%	100%	100%	100%

Source: Christalball

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.

Figure 4.10 Total yield per quality

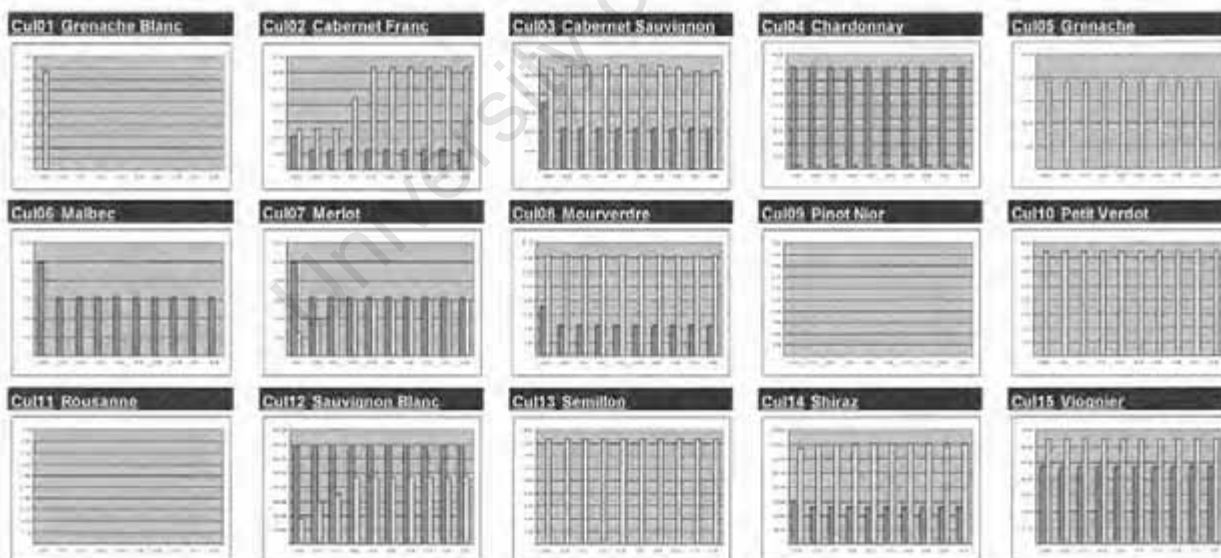
[illegible]

Source: Christalball

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.

Figure 4.11 Demand and supply



Source: Crystalball

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.

Figure 4.12 Sale of grapes

[illegible]

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.

Figure 4.13 Grape sale result

[illegible]

Source: Christalball

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.⁵⁸ 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.

⁵⁸ Organizations as systems: the viable systems model (VSM), Gould, B, The Antidote, 1999, Volume:4, Issue:1, Page:31 - 36

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 choices⁵⁹.

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 economics⁶² 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

⁶¹ Financial Economics - http://www.stanford.edu/~wfsarpe/mia/int/mia_int2.htm

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 'terroir' affects 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.⁶³ 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.

⁶³ <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.

The Definitive Business Plan, Richard Stutely, 2nd edition Business Planning

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

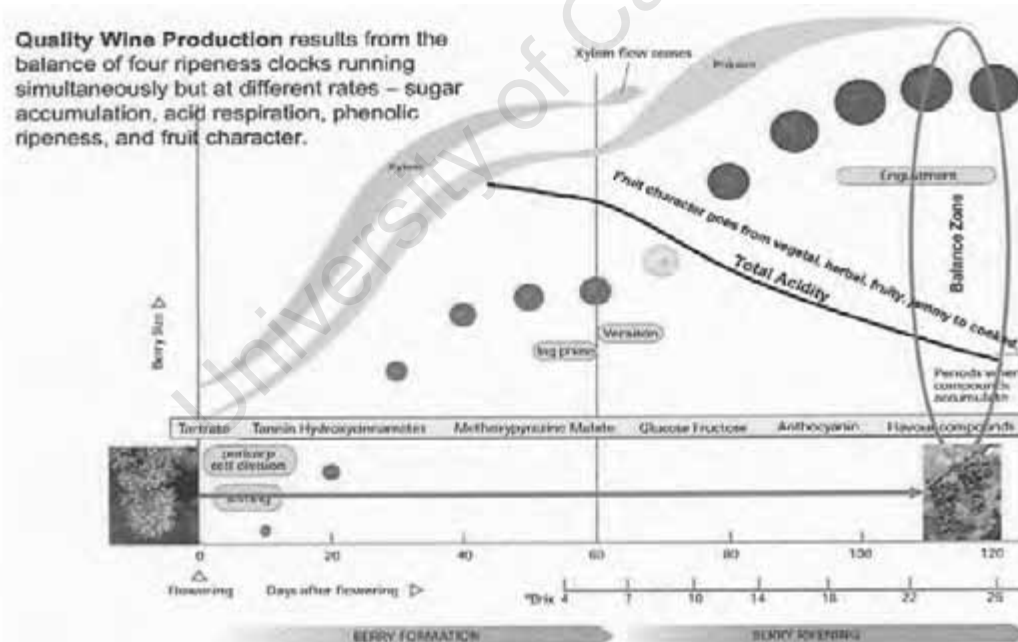
Grapes provide the precursors to color formation, bitterness, and astringency in all wines

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 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.



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.

⁶⁴ 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

Competencies in the 21st century. Richard E. Boyatzis. Journal of Management Development Vol. 27 Number 1, 2008 pp. 5-12

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,

New Jersey Institute of Technology, Multi-lifecycle Engineering Research Center, Newark, New Jersey, USA.'

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 pass 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.

⁶⁵ www.emeraldinsight.com/0144_5154.htm

5.3.3.2 Business Competency requirements

The Concept of competency

Competencies in the 21st century. Richard E. Boyatzis. Journal of Management Development Vol. 27 Number 1. 2008 pp. 5-12

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"⁶⁶. 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".⁶⁷

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

⁶⁷ Financial Economics - http://www.stanford.edu/Nwfsharpe/mia/int/mia_int2.htm

Figure 6.1 Time line

BRAND 1	PRODUCT CODE	Single Vineyard	OPTION	CASES x	BOTTLE SIZE	HARVEST MONTH	HARVEST	BULK	BOTTLING	PACKING	SALES PERIOD (MONTHS)	SALES SIZE
							TO BULK (MONTHS)	TO BOTTLING (MONTHS)	TO PACKING (MONTHS)	TO RELEASE (MONTHS)		
B1PRODUCT 1	B1P01	Five Soldiers	2	6	0.750	3	15	3	15	1	12	12
B1PRODUCT 2	B1P02	Peter Barlow Magnum	2	4	1.500	4	20	2	18	1	12	4
B1PRODUCT 3	B1P03	Peter Barlow	2	6	0.750	4	20	2	18	1	12	12
B1PRODUCT 4	B1P04	Reg Nicholson	2	8	0.750	3	20	1	15	1	12	12

For each product a harvest month is assign 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.

Figure 6.2 Allocation of product per market

MARKET	CODE	B1P01	Five Soldiers	OPTION	2010	2011	2012	2013	2014
Cellardoor	1	B1P01	Five Soldiers	2	61.5	60	80	100	100
South Africa	2	B1P01	Five Soldiers	2	152.5	165	170	200	200
UK	3	B1P01	Five Soldiers	2	125	155	220	250	250
USA	4	B1P01	Five Soldiers	2	200	200	200	200	200
Canada	5	B1P01	Five Soldiers	2	37.5	50	50	50	50
Europe	6	B1P01	Five Soldiers	2	92.5	100	100	100	100
Europe Other	7	B1P01	Five Soldiers	2	-	-	-	-	-
Switzerland	12	B1P01	Five Soldiers	2	25	20	30	50	50
Botswana	13	B1P01	Five Soldiers	2	-	-	-	-	-
Other SA	15	B1P01	Five Soldiers	2	-	-	-	-	-
Other \$	20	B1P01	Five Soldiers	2	-	-	-	-	-
Australia	30	B1P01	Five Soldiers	2	2.5	-	-	-	-
Nieu Zealand	31	B1P01	Five Soldiers	2	2.5	-	-	-	-
TOTAL					699	750	830	950	950

@ COST	CODE	B1P01	Five Soldiers	OPTION	2010	2011	2012	2013	2014
Reserve	95	B1P01	Five Soldiers	2		-	-	-	-
Tasting	96	B1P01	Five Soldiers	2		-	-	-	-
Promotions	97	B1P01	Five Soldiers	2	44	50	50	50	50
Reference	98	B1P01	Five Soldiers	2		-	-	-	-
Men in Black	99	B1P01	Five Soldiers	2		-	-	-	-
TOTAL					44	50	50	50	50

GRAND TOTAL				743	800	880	1,000	1,000
-------------	--	--	--	-----	-----	-----	-------	-------

Each product has a specific volume plan per market. This would be formulated with all role players' involvement.

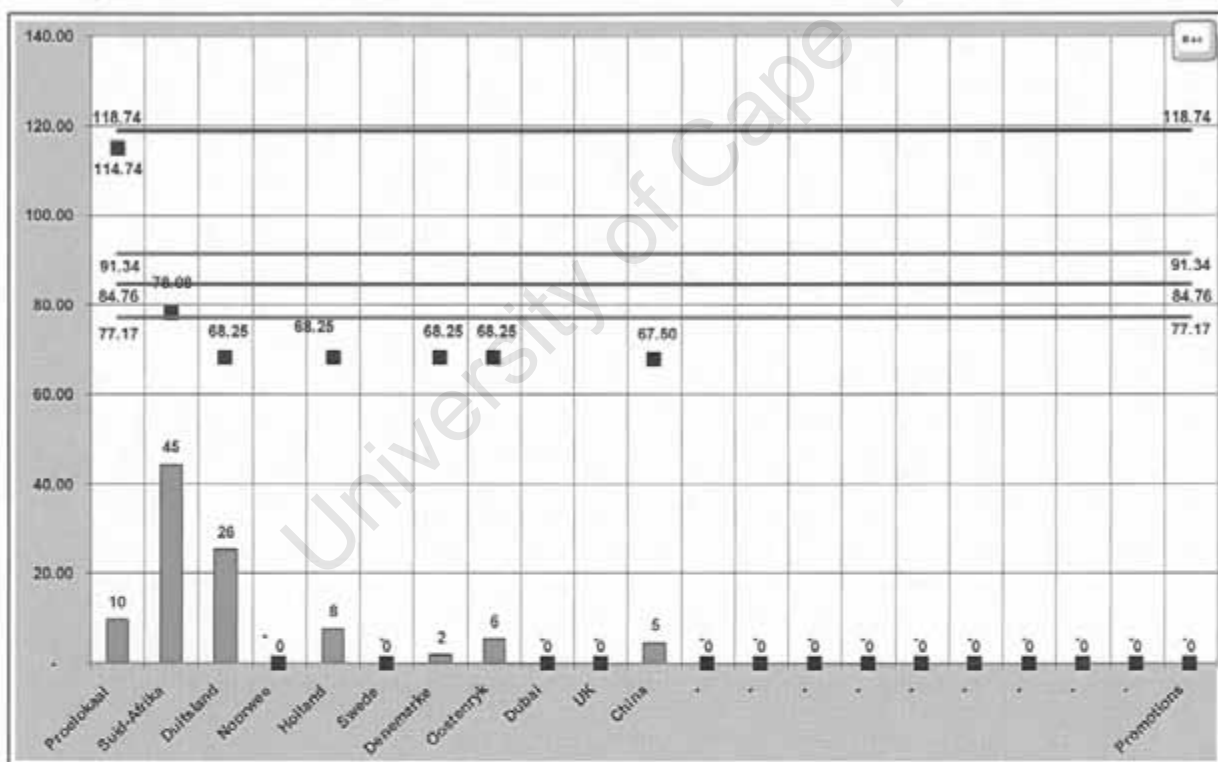
Options allows for alternatives. By changing a set of data in one specific area will calculate the ripple effect across the whole model. This allows for easy 'what if scenario planning. It creates amazing opportunity to maximize profitability.

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.

Figure 6.3 Market analysis



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

WINES (PTY) LTD

FORECASTED INCOME STATEMENTS

	2010	2011	2012
Wine Sales	7,864,217	9,846,771	10,937,757
Wine Cost of Sales	5,613,070	5,734,576	5,949,858
WINE GP	2,251,147	4,112,194	4,987,899
	28.6%	41.8%	45.6%
Other Sales	588,582	705,394	874,877
Other cost	631,499	761,921	948,695
OTHER GP	- 42,917	- 56,527	- 73,818
GROSS PROFIT	2,208,229	4,055,667	4,914,081
MARKETING EXPENCES	1,752,505	1,945,280	2,100,903
Cellardoor	252,930	280,752	303,212
National	1,499,575	1,664,529	1,797,691
International		-	-
NET WINE INCOME	455,725	2,110,387	2,813,178
OTHER EXPENCES	1,024,624	1,086,101	1,172,989
Admin	1,024,624	1,086,101	1,172,989
NET PROFIT BEFORE PRODUCTION VARIANCES	- 568,899	1,024,286	1,640,189
OVER/(UNDER) RECOVERIES IN PRODUCTION	0 -	423,801 -	491,776
Grape	0 -	423,801 -	491,776
Winemaking	-	-	-
Bottling			
EBIT	- 568,899	600,484	1,148,413
FINANCE CHARGES	234,066	220,082	204,324
Interest	234,066	220,082	204,324
EBT	-802,965	380,402	944,089

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.

Figure 6.5 Cash, funding, inventory, current assets over time



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 safe 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. ⁶⁸ 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 ⁶⁹ 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.

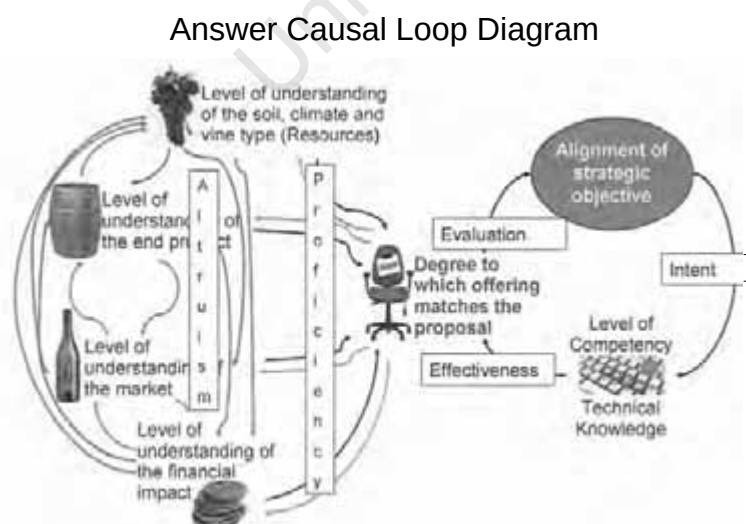
Assuming that I have learned relevant theories and concepts, it makes sense to draw on these in developing the financial economic approach to business planning. This argument assumes that such a theory will bring the relevant acumen that will allow the industry to be viable and sustainable.

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.

University of Cape Town

7 Principia Cybernetica Copyright Statement

Copyright © 1992-2000 Principia Cybernetica

All rights reserved

- Except where stated otherwise, all electronic documents carrying the note "Copyright Principia Cybernetica" are copyrighted 1992-2000 by Principia Cybernetica, Brussels and Los Alamos, all rights reserved.
- All Principia Cybernetica electronic texts may be freely linked to by any other electronic text.
- Principia Cybernetica electronic texts may be copied for educational or individual use only, provided that they are unmodified and that this copyright statement appears in them.
- Commercial use and any other copying are prohibited without the express written permission of the Principia Cybernetica Editorial Board.
- Any questions should be addressed to the Principia Cybernetica offices, at the email address cybernetica@vub.ac.be.

8 Appendix A

The Wine Business Simulation Model - An Integrated Approach: Viticulture

Pages 1 — 47

University of Cape Town

Wine Business Management

The Wine Business Simulation Model

An Integrated Approach

Area 1: Viticulture



Chris du Toit

TABLE OF CONTENTS

Abstract	3
1 Introduction and Overview	6
1.1 Situation	6
1.2 Concern	7
1.3 Question	9
1.4 Answer	9
1.4 Answer	10
1.5 Rationale	11
1.6 Evaluation	11
1.6.1 Relevance	11
1.6.2 Utility	12
1.6.3 Validity	12
1.6.4 Ethics	12
2 Literature Review	13
2.1 Technical background: Quality	13
2.2 Business Competency requirements	14
2.3 Manufacturing principles: Broad base	14
2.4 Business Principles	15
2.5 Market Pressure	16
3 Research Framework	16
3 Research Framework	17
3.1 Research Methodology	17
3.2 Data Collection Method	19
3.3 The GT Process	19
3.4 Grounded Theory results	20
4 Research Results	23
5 Evaluation and Conclusion	26
5.1 Level of understanding of the end product	26
5.2 Level of understanding the soil, climate and vine type	27
5.3 Level of understanding of the financial impact	30
5.4 Degree to which the variables in viticulture can be managed	31
5.5 Relevance	31
5.6 Utility	32
5.7 Validity	32
5.8 Ethics	32
6 Appendix A	33
7 Appendix B	41
8 Appendix C	44
8.1 The Wine Business Simulation Model: An Integrated Forecaster	44
8.2 Goal of Research	45
8.3 Conceptual Framework	45
8.4 Research Question	46
8.5 Research Methodology	47
8.6 Issues of Validity	47

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"³ in which he specifically emphasized the Steven Covey concept, "Begin with the end in mind".⁴ 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"³ 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

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

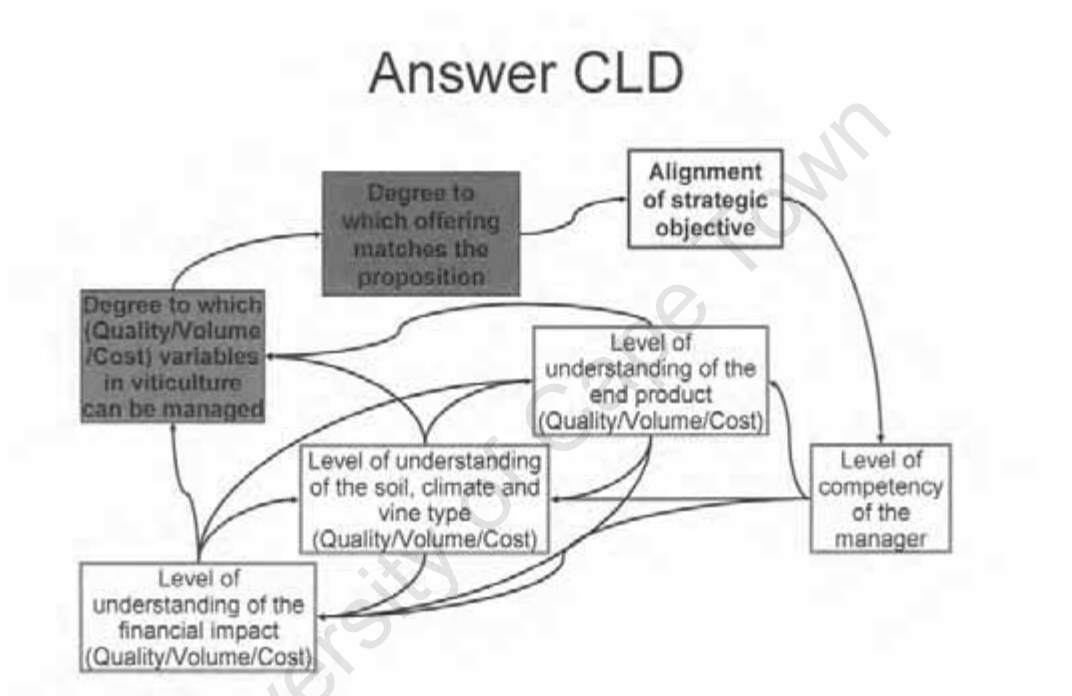
² First Things First, Stephen R. Covey, A. Roger Merrill and Rebecca R. Merrill. 1999

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 people⁵ and secondly around the three critical levels of understanding of end product, vineyard (soil, climate and vine type)⁵ 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

1 To measure performance

t To create feedback

t To forecast/simulate a potential future

⁵ Competencies in the 21st century. Richard E. Boyatzis. Journal of Management Development Vol. 27 Number 1. 2008 pp. 5-12

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.⁶ 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".*⁷ 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"⁸ in which he specifically emphasized the Steven Covey concept, "Begin with the end in mind".⁹ 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

⁶ Encyclopedia of Wines & Spirits, Alexis Lichine's, Sixth Edition, 1985

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*

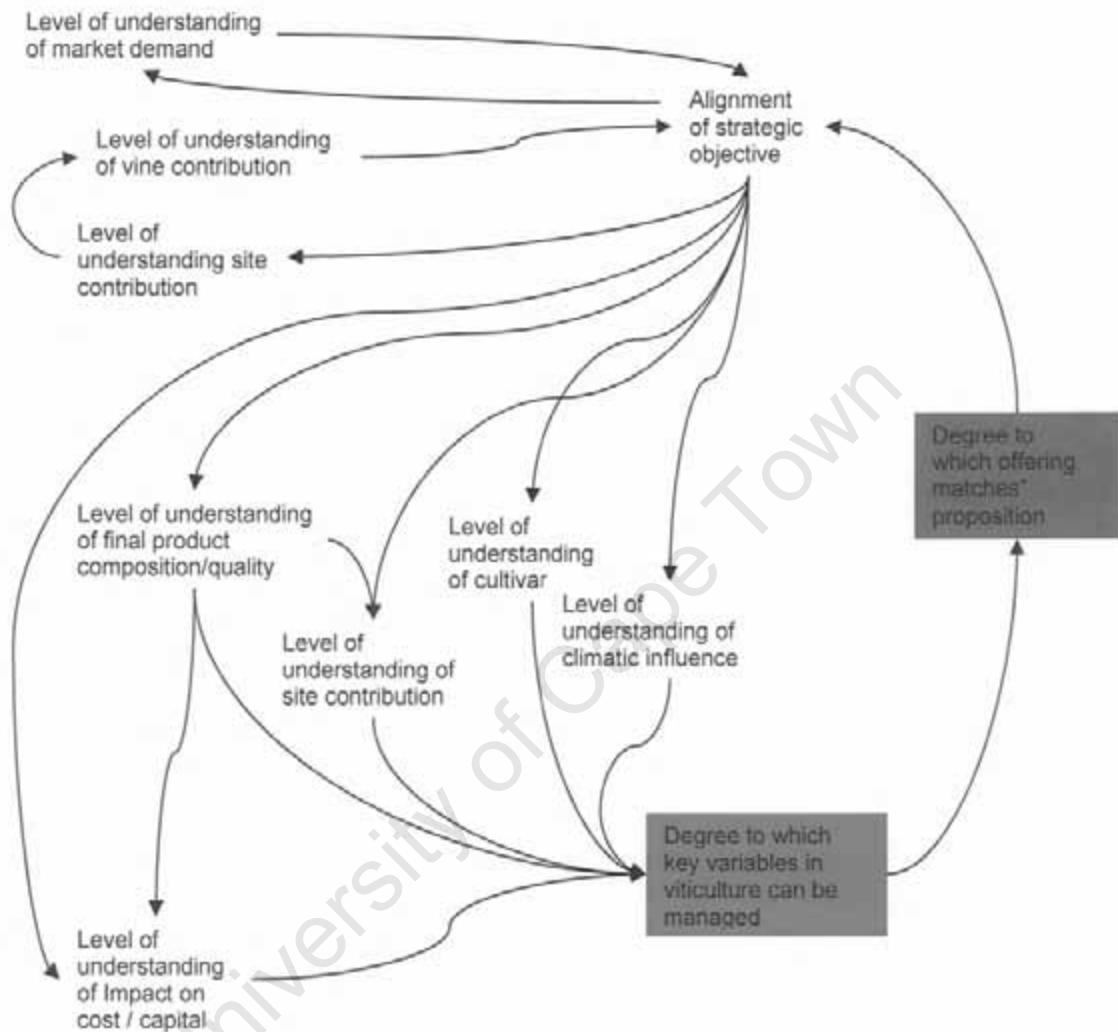
In the pursuit of developing my understanding of the drivers of the key management decision areas in the production of grapes for determining quality, volume and cost, my concern is based on the concept of "Begin with the end in mind" ¹⁰ and therefore the degree to which the offering (produced grape: 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.



¹⁰ The 7 Habits of Highly Effective People, Stephen R. Covey,

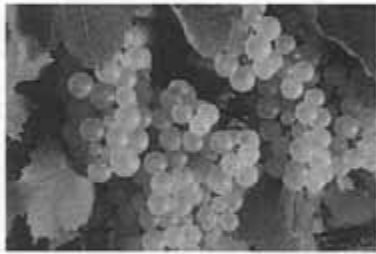
The following CLD portrays this concern.



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"

1.4



=

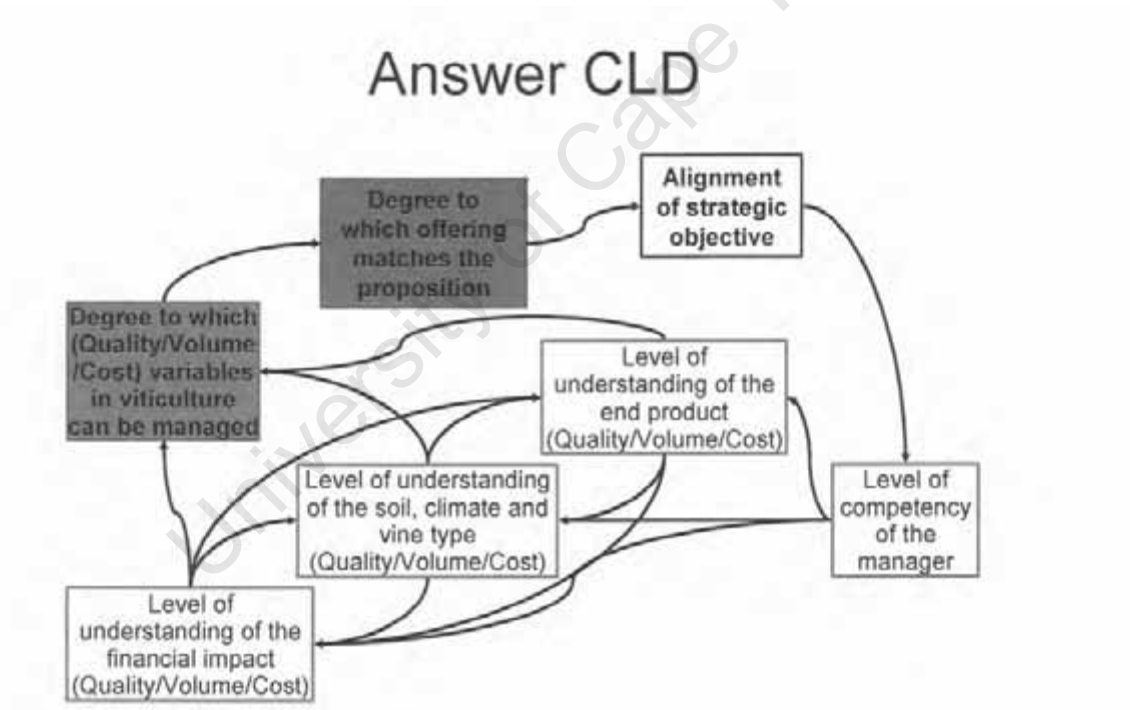


Answer

According to BG Coombe and PG I land (Viticulture Volume 1 - pp 210-211) ¹¹ the key determinant 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 ¹² and secondly around the three critical levels of understanding of end product (goal), vineyard (soil, climate and vine type) ⁵ 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.

¹¹ Viticulture, Volume 1 — Resources, 2nd edition, Edited by PR Dry and BG Coombe, Winetitles

¹² Competencies in the 21st century. Richard E. Boyatzis. Journal of Management Development Vol. 27 Number 1. 2008 pp. 5-12

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.

t Emphasis was placed on optimizing the key variables in the vineyard to determine a standard

t To manage and optimize key variables

t To measure performance

t 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

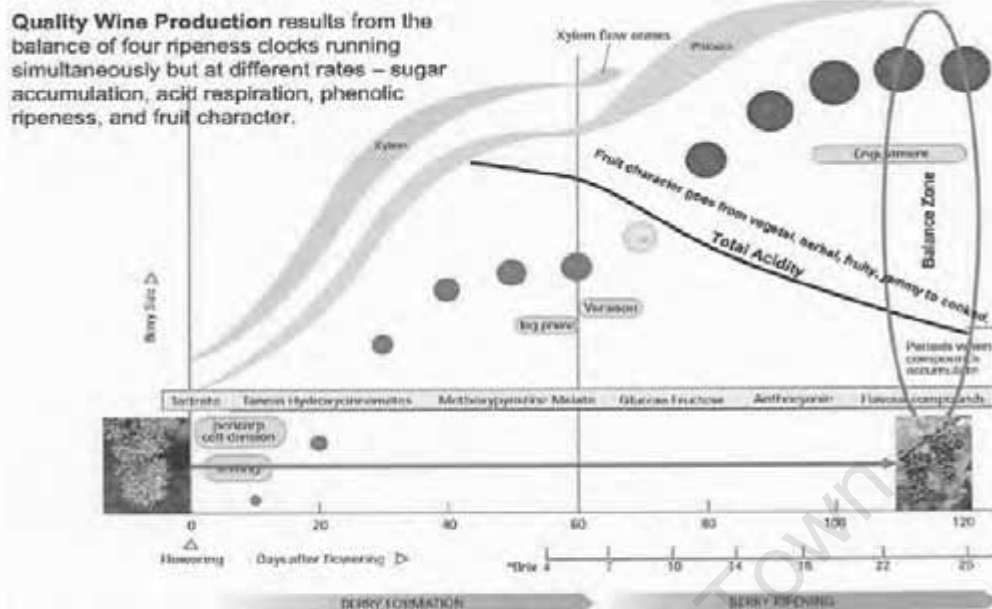
The literature review firstly supplies a background to the technical aspects of grape growing and specifically quality issues. These are the elements the viticulturist needs to manage. This leads to the competency requirement of the management involved. Thirdly I look at manufacturing outside of the 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**
 - o 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**
 - o 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.
 - o 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.¹³ The flavour compounds naturally will contribute towards a given quality based on concentration of juice based on berry size and volume.

¹³ Phenolics in Grapes, Andrew L. Waterhouse and UC Davis Students of Natural Products of Wine, 2001



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

2.2 Business Competency requirements

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

- Competencies in the 21st century. Richard E. Boyatzis. Journal of Management Development Vol. 27 Number 1. 2008 pp. 5-12

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),

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.

- o 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
 - o 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.
 - o 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
 - o Begin with the end in mind
 - o Synergy, the state where the whole is more than the sum of the parts
 - o This well known statements of Steven R Covey summarizes the approach required
- Phillip Freese, Tasting the Vineyard, 2008
 - o 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
 - o Focusing on the requirements in the metasytem

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.



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. ¹⁶ 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.

V 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

¹⁶ ©Academy of Management Journal 2006, Vol. 49, No. 4, 633-642.

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.

it Grounded Theory Is Not Perfect

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

it 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 ¹⁷ 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

¹⁷ The Creation of Theory: A Recent Application of the Grounded Theory Method, Naresh R. Pandit, The Qualitative Report, Volume 2, Number 4, December, 1996 (<http://www.nova.edu/ssss/QR/QR2/4/pandit.html>)

3.4 Grounded Theory results

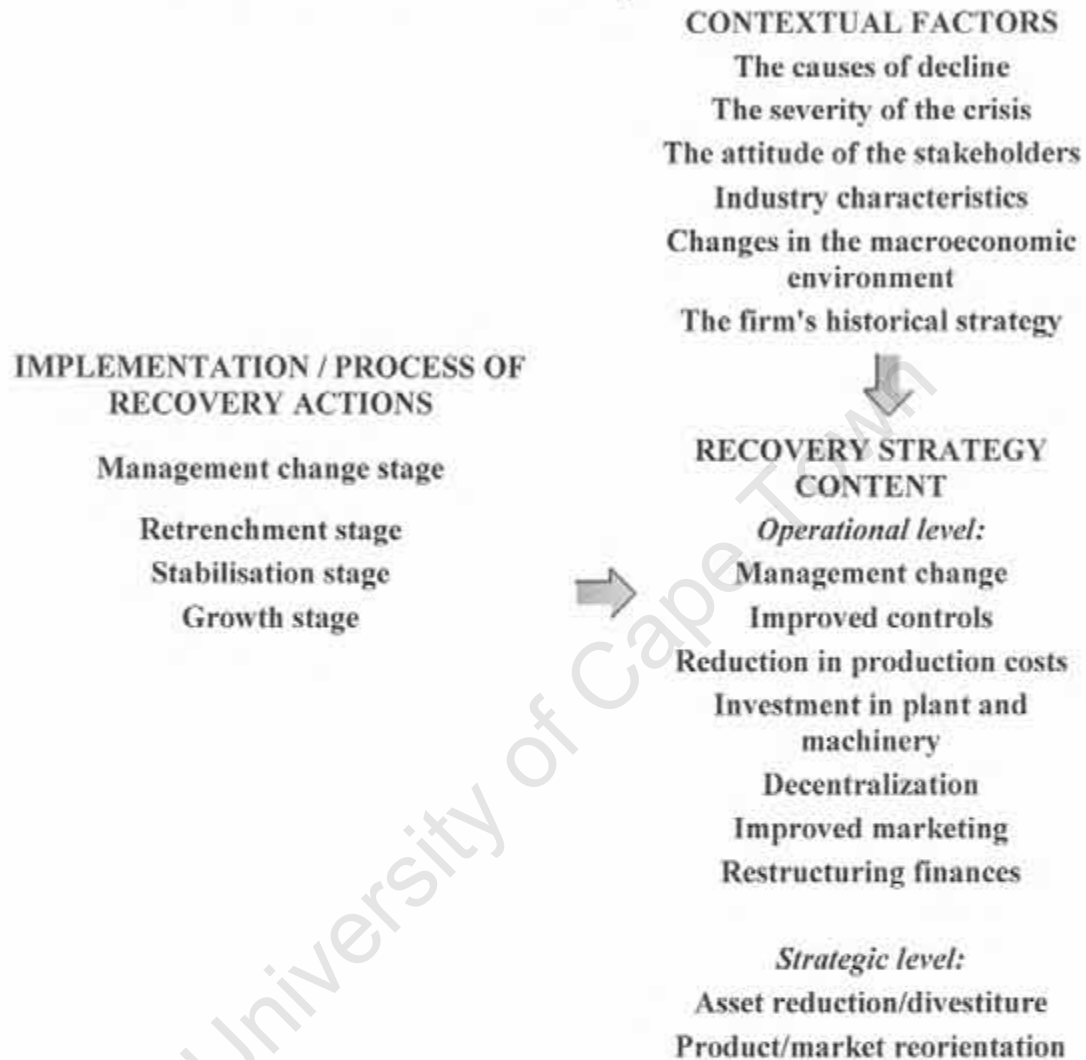
An Overview of a Grounded Theory of Corporate Turnaround ¹⁸

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 ¹⁹ for a fuller discussion).

¹⁸ The Creation of Theory: A Recent Application of the Grounded Theory Method, Naresh R. Pandit, The Qualitative Report, Volume 2, Number 4, December, 1996 (<http://www.nova.edu/ssss/QR/QR2-4/pandit.html>)

¹⁹ <http://www.nova.edu/ssss/QR/QR2-4/pandit.html#panditref>

A Theoretical Framework of Corporate Turnaround



53 propositions linking the concepts and categories within the framework were generated and tested.

Table below lists a sample of five (see Pandit²⁰, 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

Proposition Generated by the Literature Case	Fisons			BSC		
	Explicitly Supported	Implicitly Supported	Not Referred To	Explicitly Supported	Implicitly Supported	Not Referred To
A sustained deterioration in performance is the result of <i>both</i> internal and external causes.	X			X		
Successful turnaround firms are more severely affected in terms of financial performance in the downturn phase than unsuccessful recoveries.	X			X		
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.		X			X	
If the causes of decline are primarily external in origin, strategic level actions should be emphasised to effect successful recovery.	X				X	
Appropriate recovery actions vary according to industry stage.	X			X		

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:**
 - o Expected quality
 - o Quality requirement
 - o Must know the expectations from the market for a product
 - o Must know the quality elements of the product
 - o Must understand the objective of quality required for end product
- **(Level of) Understanding of soil, climate and vine type:**
 - o Water(Irrigation) availability
 - o Canopy management
 - o Vineyard site
 - o History of vineyard performance
 - o Knowledge of vine type
 - o Trellising
 - o Ton per hectare
 - o Vine type
 - o Hectares planted
 - o Must understand the terroir of the vineyard
 - o Know the volume potential of site; Quality guidelines per cultivar - national, region and developed per site(experience)
 - o PH, Acid, Sugar and Color
 - o Even ripening;
- **(Level of) Understanding of financial impact:**
 - o Recordkeeping of absolute importance
 - o Information systems critical - know on a daily basis cost component
 - o Must know what to aim for
 - o Financial implications
 - o Know how to budget
 - o 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 competency²¹ of the manager or team of managers thus Level of competency of manager

²¹ Competencies in the 21st century. Richard E. Boyatzis. Journal of Management Development Vol. 27 Number 1. 2008 pp. 5-12

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

Quality 3	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Quality 3
Price per Hectare	66,105	62,276	67,259	71,967	77,004	81,825	86,522	91,713	97,216	103,049	T/Ha
Grenache Blanc	4,675	-	-	-	-	-	-	-	-	-	12.00
Cabernet Franc	4,675	5,190	5,605	5,997	6,417	6,802	7,210	7,643	8,101	8,587	12.00
Cabernet Sauvignon	4,675	5,190	5,605	5,997	6,417	6,802	7,210	7,643	8,101	8,587	12.00
Chardonnay	5,610	6,228	6,726	7,197	7,700	8,162	8,652	9,171	9,722	10,305	10.00
Grenache	4,675	5,190	5,605	5,997	6,417	6,802	7,210	7,643	8,101	8,587	12.00
Malbec	-	-	-	-	-	-	-	-	-	-	12.00
Merlot	4,675	5,190	5,605	5,997	6,417	6,802	7,210	7,643	8,101	8,587	12.00
Mourvèdre	4,675	5,190	5,605	5,997	6,417	6,802	7,210	7,643	8,101	8,587	12.00
Pinot Noir	-	-	-	-	-	-	-	-	-	-	12.00
Petit Verdot	4,675	5,190	5,605	5,997	6,417	6,802	7,210	7,643	8,101	8,587	12.00
Rousanne	-	-	-	-	-	-	-	-	-	-	12.00
Sauvignon Blanc	4,675	5,190	5,605	5,997	6,417	6,802	7,210	7,643	8,101	8,587	12.00
Sémillon	4,675	5,190	5,605	5,997	6,417	6,802	7,210	7,643	8,101	8,587	12.00
Shiraz	3,740	4,162	4,484	4,798	5,134	5,442	5,788	6,114	6,481	6,870	15.00
Vioignier	4,675	5,190	5,605	5,997	6,417	6,802	7,210	7,643	8,101	8,587	12.00
Chenin Blanc	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

Source: Christalhall

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 competency¹⁴ 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.

BlockCode	BlockName	PlantYear	Cult Code	RootStock	Clone	NoOfVines	Size(Ha)	VisQY1	VisQY2	VisQY3	VisQY4	VisQY5	VisQY6	VisQY7	VisQY8	VisQY9	VisQY10
FS06C 2	FIVE SOLDIERS 06 C 2	2003	Cu02	101-14	CF 214	2113	0.951	2	2	2	1	1	1	1	1	1	1
FS06C 3	FIVE SOLDIERS 06 C 3	2003	Cu02	101-14	CF	150	0.068	2	2	2	1	1	1	1	1	1	1
FS06C 1	FIVE SOLDIERS 06 C 1	2003	Cu02	R110	CF 623 B	991	0.599	2	2	2	2	2	2	2	2	2	2
WG02A	WOGGA 02 A	1998	Cu02	101-14	CF 05	5001	1.875	2	2	2	2	2	2	2	2	2	2
LA03B	LAINGS 03 B	1997	Cu03	101-14	CS 18 A	6929	2.598	2	2	2	2	2	2	2	2	2	2
WG01C	WOGGA 01C	1998	Cu03	101-14	CS 20 C	691	0.259	2	2	2	2	2	2	2	2	2	2
LA05B	LAINGS 05 B	2001	Cu03	101-14	CS 338	1900	0.858	2	2	2	2	2	2	2	2	2	2
WG01A	WOGGA 01 A	2000	Cu03	101-14	CS 33	5799	2.61	2	2	2	2	2	2	2	2	2	2
LA05A	LAINGS 05 A	2001	Cu03	101-14	CS 163 C	6213	2.796	2	2	2	2	2	2	2	2	2	2
SP01	SPEKBOOM 01	2000	Cu03	101-14	CS 191	11975	4.49	3	3	3	3	3	3	3	3	3	3
WG01B	WOGGA 01B	1998	Cu03	101-14	CS 33	691	0.259	2	2	2	2	2	2	2	2	2	2
WG03A	WOGGA 03 A	2002	Cu03	101-14	CS 163	1603	0.32	3	3	3	3	3	3	3	3	3	3
WG03B	WOGGA 03 B	2002	Cu03	RGM	CS 337	416	0.983	3	3	3	3	3	3	3	3	3	3
LA09C	LAINGS 03 C	1997	Cu03	101-14	CS 20 C	3451	1.294	2	2	2	2	2	2	2	2	2	2
LA07	LAINGS 07	2001	Cu03	101-14	CS 337	2440	0.915	2	2	2	2	2	2	2	2	2	2
RU01C	RUSTENBERG 01C	2002	Cu03	101-14	CS 163	533	0.2	3	3	3	3	3	3	3	3	3	3
GB02B	GLEN BAWN 02 B	2002	Cu03	101-14	CS 163	533	0.2	3	3	3	3	3	3	3	3	3	3
GB01D	GLEN BAWN 01 D	2002	Cu03	101-14	CS 163	467	0.175	3	3	3	3	3	3	3	3	3	3
KL04C	KLIPPES 04 C	2002	Cu03	101-14	CS 163	1067	0.36	3	3	3	3	3	3	3	3	3	3

Source: Christalhall

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.

Ton per Hectare per Quality

CULT ID	CULT CODE	OPTION	TON / HA QUALITY 1	TON / HA QUALITY 2	TON / HA QUALITY 3	TON / HA QUALITY 4	TON / HA QUALITY 5
Cul01	Grenache Blanc	3	6.00	10.00	12.00	15.00	20.00
Cul02	Cabernet Franc	3	6.00	10.00	12.00	15.00	20.00
Cul03	Cabernet Sauvignon	3	6.00	10.00	12.00	15.00	20.00
Cul04	Chardonnay	3	6.00	8.00	10.00	15.00	20.00
Cul05	Grenache	3	6.00	10.00	12.00	15.00	20.00
Cul06	Malbec	3	6.00	10.00	12.00	15.00	20.00
Cul07	Merlot	3	6.00	10.00	12.00	15.00	20.00
Cul08	Mourvèdre	3	6.00	10.00	12.00	15.00	20.00
Cul09	Pinot Noir	3	6.00	10.00	12.00	15.00	20.00
Cul10	Petit Verdot	3	6.00	10.00	12.00	15.00	20.00
Cul11	Roussanne	3	6.00	10.00	12.00	15.00	20.00
Cul12	Sauvignon Blanc	3	6.00	10.00	12.00	15.00	20.00
Cul13	Semillon	3	6.00	10.00	12.00	15.00	20.00
Cul14	Shiraz	3	6.00	10.00	15.00	18.00	20.00
Cul15	Viognier	3	6.00	10.00	12.00	15.00	20.00

Source: Christalball

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.

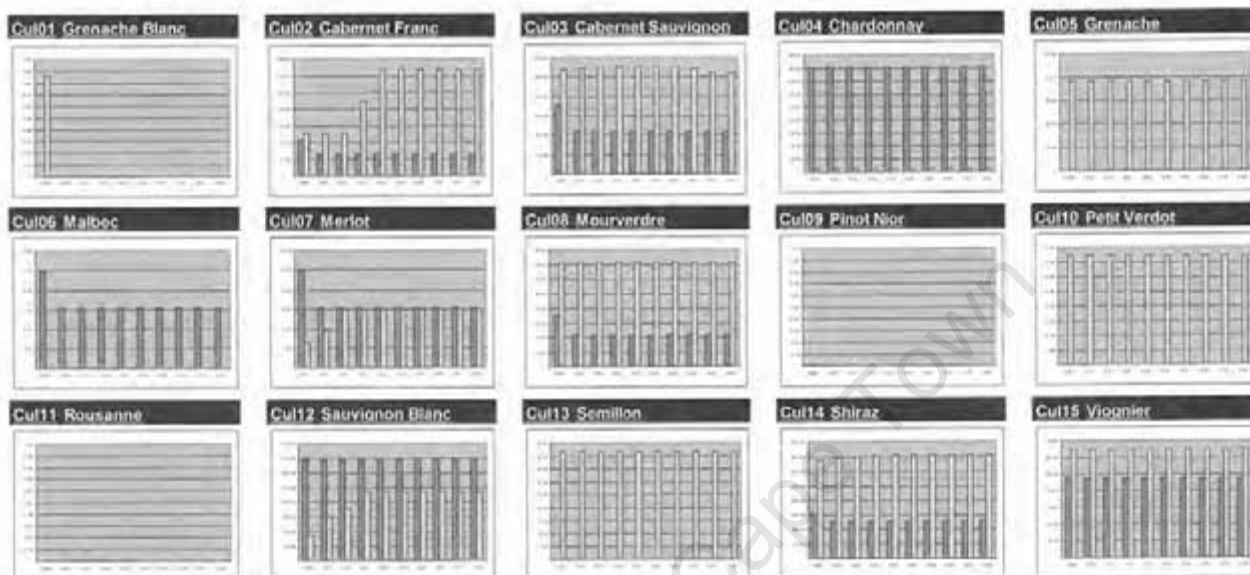
Fine-tuning each block

BlockCode	BlockName	PlantYear	Cult Code	Size(Ha)	FactorY1	FactorY2	FactorY3	FactorY4	FactorY5	FactorY6	FactorY7
FS06C.2	FIVE SOLDIERS 06 C.2	2003	Cul02	0.951	100%	100%	100%	100%	100%	100%	100%
FS06C.3	FIVE SOLDIERS 06 C.3	2003	Cul02	0.069	100%	100%	100%	100%	100%	100%	100%
FS06C.1	FIVE SOLDIERS 06 C.1	2003	Cul02	0.595	100%	100%	100%	100%	100%	100%	100%
WG02A	WOGGA 02 A	1998	Cul02	1.875	83%	80%	100%	100%	100%	100%	100%
LA03B	LAINGS 03 B	1997	Cul03	2.598	94%	100%	100%	100%	100%	100%	100%
WG01C	WOGGA 01C	1998	Cul03	0.259	100%	100%	100%	100%	100%	100%	100%
LA05B	LAINGS 05 B	2001	Cul03	0.858	100%	100%	100%	100%	100%	100%	100%
WG01A	WOGGA 01 A	2000	Cul03	2.61	100%	100%	100%	100%	100%	100%	100%
LA05A	LAINGS 05 A	2001	Cul03	2.796	100%	100%	100%	100%	100%	100%	100%
SP01	SPEKBOOM 01	2000	Cul03	4.49	100%	100%	100%	100%	100%	100%	100%
WG01B	WOGGA 01B	1998	Cul03	0.259	100%	100%	100%	100%	100%	100%	100%
WG03A	WOGGA 03 A	2002	Cul03	0.32	120%	120%	120%	120%	120%	120%	120%
WG03B	WOGGA 03 B	2002	Cul03	0.083	120%	120%	120%	120%	120%	120%	120%
LA03C	LAINGS 03 C	1997	Cul03	1.294	94%	100%	100%	100%	100%	100%	100%
LA07	LAINGS 07	2001	Cul03	0.915	100%	100%	100%	100%	100%	100%	100%
RU01C	RUSTENBERG 01C	2002	Cul03	0.2	80%	100%	100%	100%	100%	100%	100%
GB02B	GLEN BAWN 02 B	2002	Cul03	0.2	100%	100%	100%	100%	100%	100%	100%
GB01D	GLEN BAWN 01 D	2002	Cul03	0.175	100%	100%	100%	100%	100%	100%	100%
KL04C	KLIPIES 04 C	2002	Cul03	0.36	80%	75%	80%	100%	100%	100%	100%

Source: Christalball

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

[illegible]

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.

		2010	2011	2012	2013	2014	2015	2016	2017	2018
PRODUCTION COST										
PRODUCTION COST	7,518,257	10,024,176	10,506,296	11,241,737	12,028,658	12,648,347	12,520,656	12,736,289	13,420,749	14,225,994
PRODUCTION RECOVERY										
	97.2%	87.5%	95.1%	101.2%	100.9%	100.9%	101.0%	101.1%	101.1%	101.1%
GRAPE SALES VALUE	2,808,360	3,378,374	3,546,320	3,733,250	3,784,466	3,784,466	3,374,586	3,180,076	3,140,716	3,140,716
GRAPE SALES COST	3,140,257	4,183,457	4,763,975	5,408,140	5,809,829	6,158,419	5,649,618	5,633,946	5,893,011	6,246,582
GRAPE SALES PROFIT	(331,897)	(805,083)	(1,217,655)	(1,674,891)	(2,025,363)	(2,373,953)	(2,275,032)	(2,453,871)	(2,752,295)	(3,105,876)
GRAPE RECOVERY PROFIT/(LOSS)	(211,822)	(1,256,961)	(811,656)	133,698	106,504	113,848	128,964	141,708	150,955	160,013
NETT GRAPE PROFIT/(LOSS)										

Source: Christofall

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 mind⁴ 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.

- Y Emphasis was placed on optimizing the key variables in the vineyard to determine a standard
- it To manage and optimize key variables
- V 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.

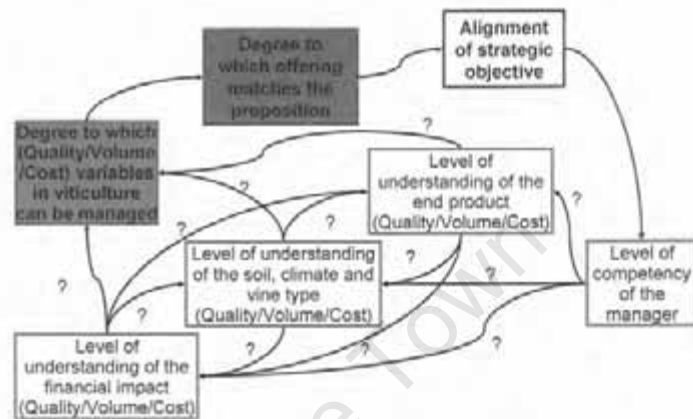
6 Appendix A

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:

Fig A

Answer CLD



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

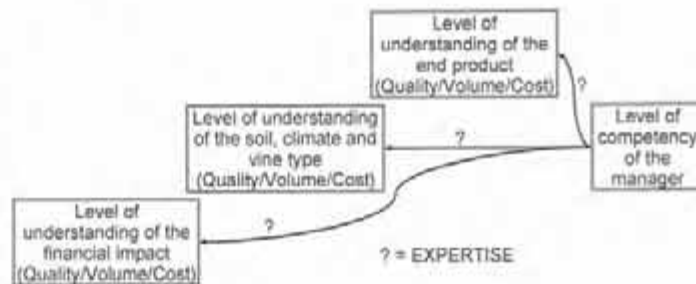
This is done by a four step process that constructs a CLD that form the basis of the strategic options.

Step 1

In what way will an increase in the level of competency of the manager increase the level of understanding of the 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

Fig.B



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 Great*²⁴. 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.

²² Competencies in the 21st century. Richard E. Boyatzis. Journal of Management Development Vol. 27 Number 1, 2008 pp. 5-12

²³ Competencies in the 21st century. Richard E. Boyatzis. Journal of Management Development Vol. 27 Number 1, 2008 pp. 5-12

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;

- ii. How to develop the required management *behaviour* - the visible actions that contribute to the accomplishment of the management task;

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

- iv. 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.

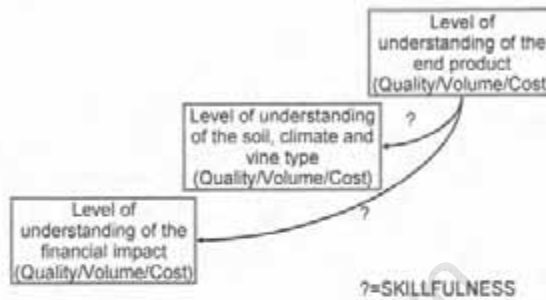
Fig B illustrates the logic of this process.

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.

Fig.C



Skilfulness

In the journal, Skills and competency management by Mark Homer²⁵, 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.

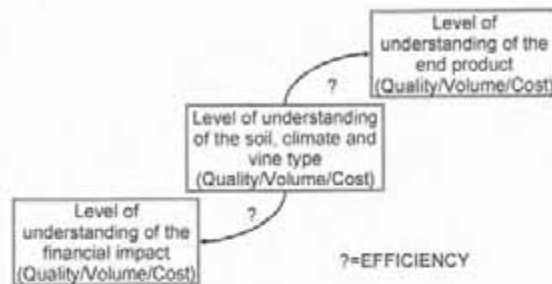
²⁵ Skills and competency management, Mark Homer, Industrial and Commercial Training, Volume 33, Number 2, 2001, pp. 59-62, MCB University Press

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.

Fig:D



Efficiency

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

The most important issues of the viticulturist is:

1. Knowledge²⁶
2. Technical Application²⁷
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.

²⁶ Phenolics in Grapes, Andrew L. Waterhouse and UC Davis Students of Natural Products of Wine, 2001

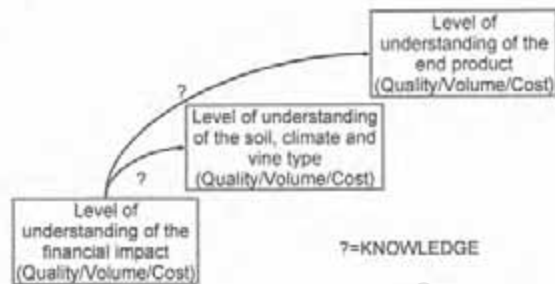
²⁷ Phillip Freese, Tasting the Vineyard, 2008

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 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

Fig.E



Knowledge

1. Capturing and developing knowledge resources.
2. Consolidating and storing knowledge resources.
3. Knowledge transfer and diffusion.
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

²⁸ 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

²⁹ 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.³⁰

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.

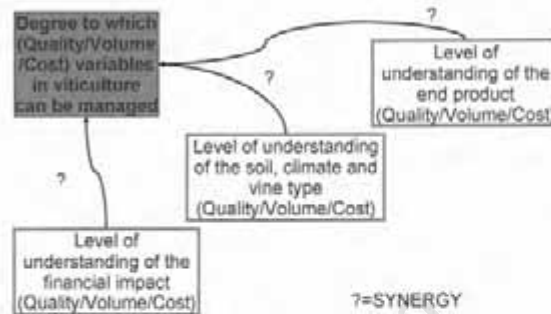
³⁰ Michael Porter, *Competitive Strategy*, Free Press, 2004

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.³¹

Fig. F



Synergy

Synergy is the state in which the whole is more than the sum of the parts.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.

³¹ Principle-centered leadership, Stephen R. Covey, 1999

³² The 7 habits of highly effective people, Stephen R. Covey

7 Appendix B

<u>Research Question</u> 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(Backsberg)
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

Volume: • Clear and well designed upfront plan that covers cost, quality and volume in relation with each vineyard • Communication - Timeline of info e.g. Pruning effect end result • Feedback over complete lifespan of product to evaluate certain actions taken-recordkeeping of absolute importance
Cost: • Information systems critical - know on a daily basis cost component • must know what to aim for • Know how to budget • Know what effect is on finance of decisions made
Question: Would the approach be different when you buy in grapes?
Quality: • Provide producer with set of requirements i.e. sugar, ph, acid, ton per hectare plus any other technical requirements needed for end product
Volume: • Ton per hectare requirements set
Cost: • Market related price • Specific price • Often have to buy A to get B

8 Appendix C

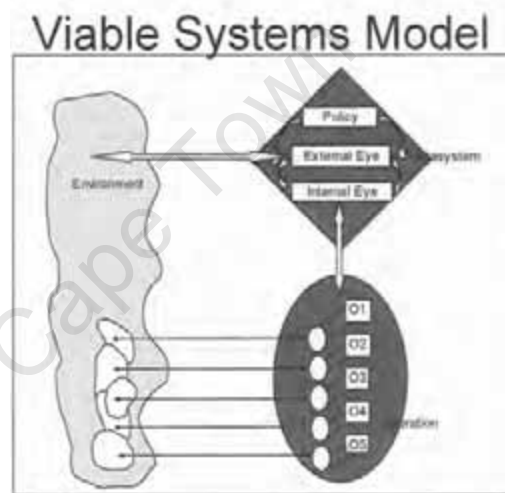
8.1 The Wine Business Simulation Model: An Integrated Approach

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 VSM³³ 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.



System 5 Policy, ultimate authority
System 4 Adaptation, forward planning, strategy
System 3 Internal regulation, optimization, synergy
System 2 Conflict resolution, stability
System 1 Primary activities

Source: The Viable Systems Model, Jon Walker, 1991

³³ The Viable Systems Model, Jon Walker, 1991

³⁴ Rabobank, Winning Strategies in the wine industry, Arend Heijbroek, Rabobank 2006

8.2 Goal of Research

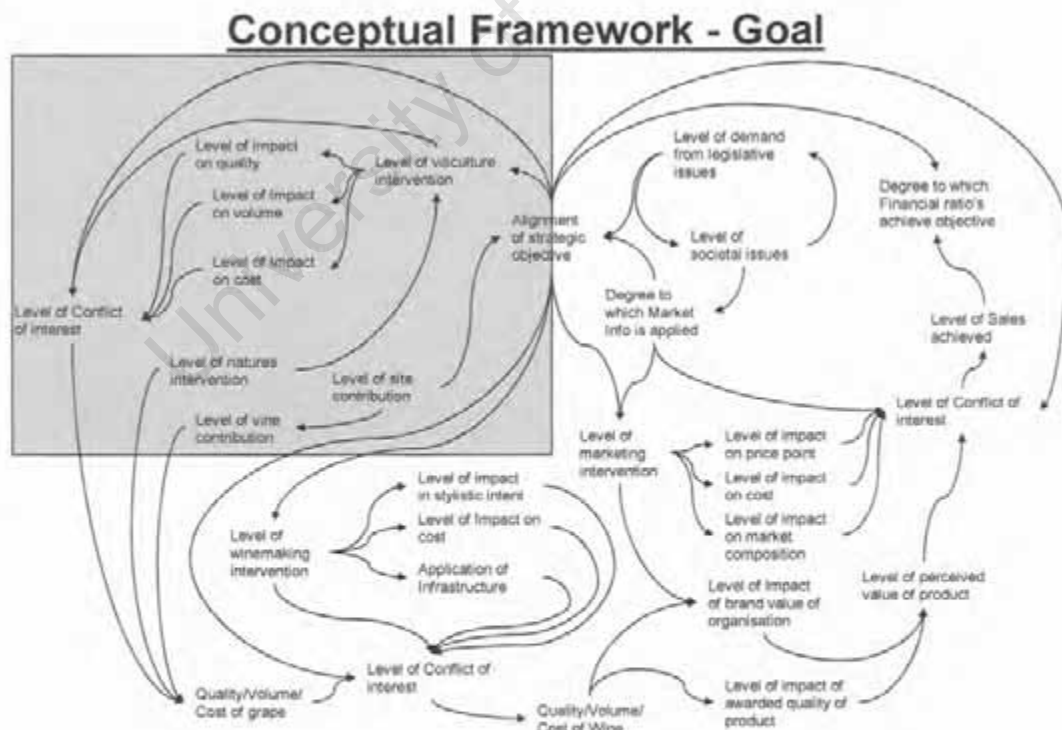
To create a tool that can assist the wine business manager, viticulturist, winemaker and sales manager in:

- t Determining Set of Targets within the bigger Business Objective
- t Managing Key Variables
- t Measuring Performance
- t 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:



The highlighted section refers to the viticulture concept dealt with in this paper.

8.4 Research Question

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

f Quality
t Volume
t Cost

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

t Quality
t Volume
t Cost

In relation to the proposition of:

Quality
T Volume
Cost



Checkpoint

Interaction between Research Question, Research Methodology and Validity

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

- Determining Set of Targets to achieve proposition
- Measuring Performance(Match to proposition)
- Creating Feedback(Manage variances)

To what degree does the offering matches the proposition of Quality, Volume and Cost

Research Goal

Conceptual Framework

Research Question

Firstly: What are the key variables in viticulture that influences the outcome of Quality, Volume and Cost
Secondly: Degree to which these variables in viticulture affects the outcome of Quality, Volume and Cost

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

University of Cape Town

9 Appendix B

The Wine Business Simulation Model - An Integrated Approach: Winemaking

Pages 1 – 49

University of Cape Town

Wine Business Management

The Wine Business Simulation Model

An Integrated Approach

Area 2: Winemaking



Chris du Toit

TABLE OF CONTENTS

Abstract	3
1 Introduction and Overview	6
1.1 Situation	6
1.2 Concern	7
1.3 Question	9
1.4 Answer	9
1.5 Rationale	11
1.6 Evaluation	11
1.6.1 Relevance	11
1.6.2 Utility	11
1.6.3 Validity	12
1.6.4 Ethics.....	12
2 Literature Review	13
2.1 Technical	13
2.2 Quality	Error! Bookmark not defined.
2.3 Business Competency requirements	13
2.4 Manufacturing principles: Broad base	13
2.5 Business Principles	14
2.6 Market Pressure	16
3 Research Framework	17
3.1 Research Methodology	17
3.2 Data Collection Method	19
3.3 The GT Process	19
3.4 Grounded Theory results	20
4 Research Results	23
5 Evaluation and Conclusion	26
5.1 Level of understanding of the style, wood application and maturation	26
5.2 Level of understanding the end product	28
5.3 Level of understanding of the financial impact	31
5.4 Degree to which the variables in Winemaking can be managed	33
5.5 Relevance	33
5.6 Utility	33
5.7 Validity	33
5.8 Ethics	34
6 Appendix A	35
7 Appendix B	43
8 Appendix C	46
8.1 The Wine Business Simulation Model: An Integrated approach	46
8.2 Goal of Research	47
8.3 Conceptual Framework	47
8.4 Research Question	48
8.5 Research Methodology	49
8.6 Issues of Validity	49

Abstract

Bryce Rankine in his book "Making Good Wine"¹ 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)² "the key determinant 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 their role is critical is absolutely undisputable, but it is far more a technical ability and competency issue³ 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 palate, an appreciation of wine types and quality, be able to manage staff, and have some knowledge of management, costing and marketing."⁴



The Steven Covey concept, "Begin with the end in mind"⁵, 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"⁶ and therefore the degree to which the offering (produced wine: quality, volume, cost) matches the proposition (expected wine: quality, volume, cost)

Making Good Wine, Bryce 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

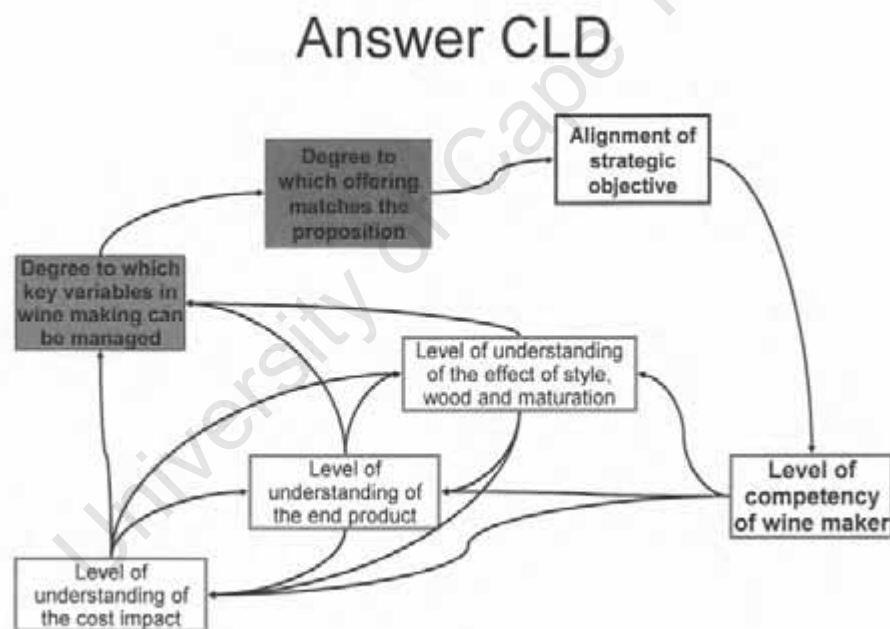
⁵ The 7 Habits of Highly Effective People, Stephen R. Covey,

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 ⁸ 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.



Competencies in the 21st century. Richard E. Boyatzis. Journal of Management Development Vol. 27 Number 1. 2008 pp. 5-12

⁸ Making Good Wine, Bryce 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"⁹ 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)¹⁰ "the key determinant 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 their role is critical is absolutely undisputable, but it is far more a technical ability and competency issue¹¹ 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 palate, an appreciation of wine types and quality, be able to manage staff and have some knowledge of management, costing and marketing. ..."¹²



The Steven Covey concept, "Begin with the end in mind"¹³, 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.

⁹ Making Good Wine, Bryce Rankine, 2006

¹⁰ Viticulture, Volume 1 — Resources, 2nd edition, Edited by PR Dry and BG Coombe, Winetitles 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" ¹⁴ and therefore the degree to which the offering (produced wine: quality, volume, cost) matches the proposition (expected wine: quality, volume, cost)

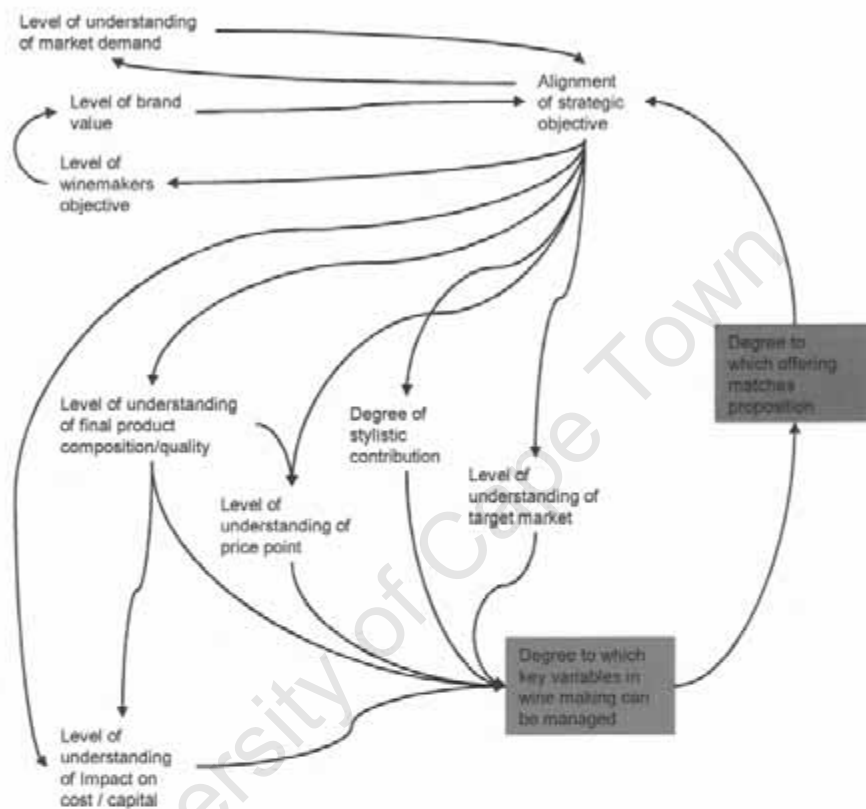
Initially I identified the drivers of the quality/volume/cost of wine firstly as the level of understanding of market demand, secondly as the level of winemaker's intention with brand value contribution and thirdly the operational issues; level of understanding of style, the level of understanding of 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.



¹⁴ The 7 Habits of Highly Effective People, Stephen R. Covey,

The following CLD portrays this concern.

Conceptual Framework – Area 2



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" ¹⁵ 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) ¹⁶ the key determinant 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 vineyard. 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

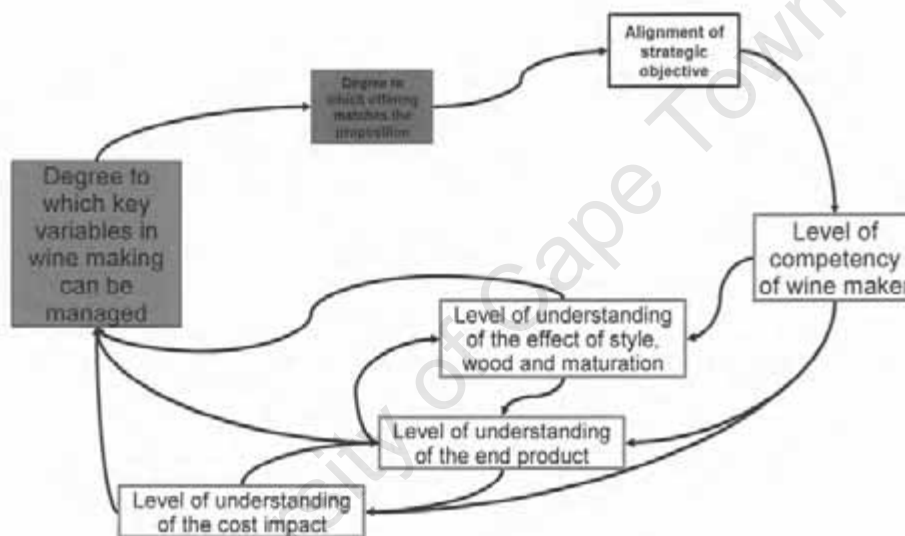
¹⁵ Making Good Wine, Bryce Rankine, 2006

¹⁶ 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.

Answer CLD



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.

¹⁷ Competencies in the 21st century. Richard E. Boyatzis. Journal of Management Development Vol. 27 Number 1. 2008 pp. 5-12

¹⁸ Making Good Wine, Bryce 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.

It 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
- 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.
- 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.

- Competencies in the 21st century. Richard E. Boyatzis. Journal of Management Development Vol. 27 Number 1. 2008 pp. 5-12

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.**¹⁹
 - o 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.
 - o 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**
 - o Begin with the end in mind
 - o Synergy, the state where the whole is more than the sum of the parts
 - o This well known statements of Steven R Covey summarizes the approach required

¹⁹ www.emeraldinsight.com/0144-5154.htm

- 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

University of Cape Town

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 ²⁰

The following summary on Grounded Theory was made from ©Academy of Management Journal 2006. Vol. 49, No. 4, 633-642.²¹ article on "What Grounded Theory is Not" by Roy Suddaby of the Alberta University on request of the editors of the journal.

IF 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.

it 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.

²⁰ http://en.wikipedia.org/wiki/Grounded_theory#cite_note-0#cite_note-0

²¹ ©Academy of Management Journal 2006, Vol. 49, No. 4, 633-642.

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.

V 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 procedures²² 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

²² The Creation of Theory: A Recent Application of the Grounded Theory Method, Naresh R. Pandit, The Qualitative Report, Volume 2, Number 4, December, 1996 (<http://www.nova.edu/ssss/QR/QR2-4/pandit.html>)

3.4 Grounded Theory results

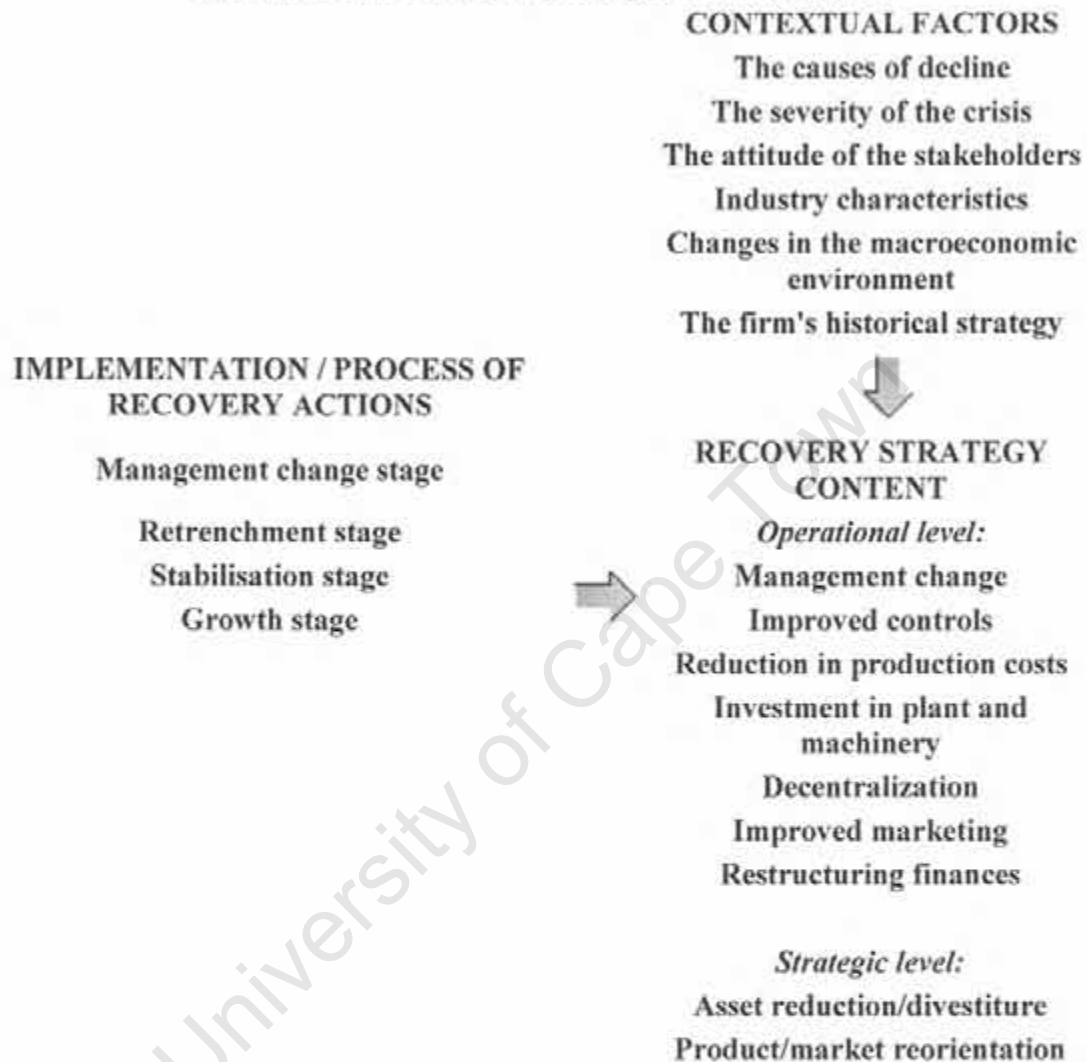
An Overview of a Grounded Theory of Corporate Turnaround ²³

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 ²⁴ for a fuller discussion).

²³ The Creation of Theory: A Recent Application of the Grounded Theory Method, Naresh R. Pandit, The Qualitative Report, Volume 2, Number 4, December, 1996 (<http://www.nova.edu/ssss/QR/QR2-4/pandit.html>)

²⁴ <http://www.nova.edu/ssss/QR/QR2-4/pandit.html#panditref>

A Theoretical Framework of Corporate Turnaround



53 propositions linking the concepts and categories within the framework were generated and tested.

Table below lists a sample of five (see Pandit²⁵, 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

Proposition Generated by the Literature Case	Fisons			BSC		
	Explicitly Supported	Implicitly Supported	Not Referred To	Explicitly Supported	Implicitly Supported	Not Referred To
A sustained deterioration in performance is the result of <i>both</i> internal and external causes.	X			X		
Successful turnaround firms are more severely affected in terms of financial performance in the downturn phase than unsuccessful recoveries.	X			X		
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.		X			X	
If the causes of decline are primarily external in origin, strategic level actions should be emphasised to effect successful recovery.	X				X	
Appropriate recovery actions vary according to industry stage.	X			X		

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
- 3. 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
 - 4. Attention to detail e.g. chemical analysis for control
 - Extraction approach, e.g. bleeding of for color enhancement or not
 - Capacity of cellar
 - 5. 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
- % Style to be achieved for product
- ti Cellar hygienic
 - Must understand the objective of quality required for end product
 - Must know how to protect juice with winemaking practices
- 1. 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
- t• 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
 - Blending skills
 - Clear and well designed upfront plan that covers volume in relation with each product
- Communication — Volume required
 - Measure against objectives
- Strict processing controls
- ii. Information systems critical
 - Must know what budget is
 - Know how to budget
- 4. Know what effect is on finance of decisions made

Level of understanding of End Product:

As above

Level of understanding of Financial impact:

As above

Application of knowledge:

- Timing of picking of grapes
- L Vineyard site
- Et. Know-how of viticulturist
 - History of vineyard performance
- L 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
- It. 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
- ll. 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
- lt. 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
- rn. Feedback of product to evaluate certain actions taken- recordkeeping of absolute importance
 - Manage batches of quality
- t. Blending skills
- Z. 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
- lt. 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

²⁶ Competencies in the 21st century. Richard E. Boyatzis. Journal of Management Development Vol. 27 Number 1. 2008 pp. 5-12

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.

An example of such a set of extraction figures per quality level is shown below.

CULT ID	CULT CODE	OPTION	TON / HA Q1	TON / HA Q2	TON / HA Q3	TON / HA Q4	TON / HA Q5
Cul01	CBL	2	680	700	700	700	700
Cul02	CF	2	660	660	660	700	700
Cul03	CS	2	635	650	670	700	700
Cul04	CY	2	635	650	670	700	700
Cul05	GR	2	680	700	720	700	700
Cul06	MAL	2	680	700	700	700	700
Cul07	MER	2	680	700	700	700	700
Cul08	MEV	2	500	500	500	700	700
Cul09	PN	2	680	700	700	700	700
Cul10	PV	2	600	600	600	700	700
Cul11	ROZ	2	600	600	600	700	700
Cul12	SBL	2	680	700	680	700	700
Cul13	SEM	2	680	700	700	700	700
Cul14	SHZ	2	680	700	635	700	700
Cul15	VIO	2	680	700	635	700	700
Cul16	CHB	2	680	700	700	700	700

Source: Christalball

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.

An example of such a set of extraction figures per quality level is shown below.

CULT ID	CULT CODE	OPTION	TON / HA Q1	TON / HA Q2	TON / HA Q3	TON / HA Q4	TON / HA Q5	DEFAULT Q1	DEFAULT Q2	DEFAULT Q3	DEFAULT Q4	DEFAULT Q5	DEFAULT COST
Cul01	CBL	2	100.0%	100.0%	100.0%	100.0%	100.0%	4	4	4	4	4	50%
Cul02	CF	2	100.0%	100.0%	100.0%	100.0%	100.0%	4	4	4	4	4	50%
Cul03	CS	2	100.0%	100.0%	100.0%	100.0%	100.0%	4	4	4	4	4	50%
Cul04	CY	2	100.0%	100.0%	100.0%	100.0%	100.0%	4	4	4	4	4	50%
Cul05	GR	2	100.0%	100.0%	100.0%	100.0%	100.0%	4	4	4	4	4	50%
Cul06	MAL	2	100.0%	100.0%	100.0%	100.0%	100.0%	4	4	4	4	4	50%
Cul07	MER	2	100.0%	100.0%	100.0%	100.0%	100.0%	4	4	4	4	4	50%
Cul08	MEV	2	100.0%	100.0%	100.0%	100.0%	100.0%	4	4	4	4	4	50%
Cul09	PN	2	100.0%	100.0%	100.0%	100.0%	100.0%	4	4	4	4	4	50%
Cul10	PV	2	100.0%	100.0%	100.0%	100.0%	100.0%	4	4	4	4	4	50%
Cul11	ROZ	2	100.0%	100.0%	100.0%	100.0%	100.0%	4	4	4	4	4	50%
Cul12	SBL	2	100.0%	100.0%	100.0%	100.0%	100.0%	4	4	4	4	4	50%
Cul13	SEM	2	100.0%	100.0%	100.0%	100.0%	100.0%	4	4	4	4	4	50%
Cul14	SHZ	2	100.0%	100.0%	100.0%	100.0%	100.0%	4	4	4	4	4	50%
Cul15	VIO	2	100.0%	100.0%	100.0%	100.0%	100.0%	4	4	4	4	4	50%
Cul16	CHB	2	100.0%	100.0%	100.0%	100.0%	100.0%	4	4	4	4	4	50%

Source: Christalball

The cost implication of this will be discussed in 5.3

An example of new wood usage as % in a wine

Source: Crystalball

The level of understanding the end product is one of the most crucial aspects of the winemaker's make-up. The competency ¹⁴ 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.

Source: Christalball

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.

[illegible]

University of Cape Town

An example of blending components for a product

HARVEST YEAR	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cabernet Sauvignon	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
B1W01: WB1CAB - CabSav														
B1W02: WB1C4 - Chard														
B1W03: WB1W03 -														
B1W04: WB1W04 -														
B1W05: WB1W05 -														
B1W06: WB1W06 -														
B1W07: WB1W07 -														
B1W08: WB1W08 -														
B1W09: WB1W09 -														
B1W10: WB1W10 -														
B2W01: WB2CAB - CabSav														
B2W02: WB2C4 - Chard														
B2W03: WB2MER - Merlot														
B2W04: WB2MAL - Malbec														
B2W05: WB2CF - CabFranc														
B2W06: WB2ROU - Rouanne														
B2W07: WB2SHZ - Shiraz														
B2W08: WB2PV - Petit Verdot														
B2W09: WB2W09 -														
B2W10: WB2W10 -														
B3W01: WB3CAB - CabSav	85%	95%	95%	95%	85%	95%	95%	95%	85%	95%	95%	95%	95%	95%
B3W02: WB3C4 - Chard														
B3W03: WB3MER - Merlot	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
B3W04: WB3SHZ - Shiraz														
B3W05: WB3PORT - Port														
B3W06: WB3SIL - Sauvignon Blanc														
B3W07: WB3VIO - Viognier														
B3W08: WB3ROS - Rose														
B3W09: WB3STR - Straw														
B3W10: WB3W10 -														
EXPOR	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: Christalball

This takes us to the interesting calculation of grape volumes required per quality level. In this calculation various aspects needs 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.

An example of grape costs for quality level 2

Quality 2	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Ton per Hectare	56,105	62,276	67,259	71,967	77,004	81,625	86,522	91,713	97,216	103,049
Grenache Blanc	-	6,228	6,726	7,197	7,700	8,162	8,652	9,171	9,722	10,305
Cabernet Franc	5,610	6,228	6,726	7,197	7,700	8,162	8,652	9,171	9,722	10,305
Cabernet Sauvignon	5,610	6,228	6,726	7,197	7,700	8,162	8,652	9,171	9,722	10,305
Chardonnay	7,013	7,785	8,407	8,996	9,626	10,203	10,815	11,464	12,152	12,881
Grenache	-	-	-	-	-	-	-	-	-	-
Malbec	5,610	6,228	6,726	7,197	7,700	8,162	8,652	9,171	9,722	10,305
Merlot	5,610	6,228	6,726	7,197	7,700	8,162	8,652	9,171	9,722	10,305
Mourvèdre	-	-	-	-	-	-	-	-	-	-
Pinot Noir	5,610	6,228	6,726	7,197	7,700	8,162	8,652	9,171	9,722	10,305
Petit Vardot	5,610	6,228	6,726	7,197	7,700	8,162	8,652	9,171	9,722	10,305
Rousanne	5,610	6,228	6,726	7,197	7,700	8,162	8,652	9,171	9,722	10,305
Sauvignon Blanc	-	-	-	-	-	-	-	-	-	-
Semillon	-	-	-	-	-	-	-	-	-	-
Shiraz	-	-	-	-	-	-	-	-	-	-
Vioigner	-	-	-	-	-	-	-	-	-	-
Chenin Blanc	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-

Source: Christalball

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

An example of bulk wine cost.

Chardonnay
PRICE PER LITRE
Litre Cost
Wood
Base Cost
Cellar Cost
Production Losses
Cost end of Prod Year 1
Cellar Cost
Production Losses
Cost end of Prod Year 2
Cellar Cost
Production Losses
Cost end of Prod Year 3
Cellar Cost
Production Losses
Cost end of Prod Year 4
CutOff

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
		40.00	16.79	11.99	12.93	13.64	14.87	15.55	16.48	17.47	18.57	19.63
			10.03	10.83	11.88	12.63	13.63	14.72	15.90	17.17	18.55	20.03
		40.00	20.81	22.80	24.62	26.46	28.20	29.27	32.36	34.64	37.07	38.66
		6.36	6.66	6.63	6.32	6.74	6.20	6.70	7.24	7.80	8.44	9.12
		1.45	0.83	0.60	0.81	0.68	0.73	0.78	0.83	0.89	0.95	1.00
		47.84	25.90	28.31	30.57	32.86	35.23	37.78	40.45	43.21	46.14	48.79
			6.98	7.45	8.04	8.69	9.39	10.13	10.94	11.82	12.76	13.76
			0.72	0.89	0.82	0.80	0.86	0.75	0.80	0.76	1.08	1.48
		47.84	13.67	30.61	36.57	42.56	48.67	49.61	52.56	56.45	60.40	64.09
			-	-	-	-	-	-	-	-	-	-
			-	-	-	-	-	-	-	-	-	-
		27.34	51.57	30.01	39.53	42.86	44.31	48.01	43.30	50.25	50.80	53.58
			-	-	-	-	-	-	-	-	-	-
		47.84	33.57	36.81	30.53	42.55	45.87	40.01	43.80	56.45	60.00	65.00

Chardonnay
LITRES
GRAPES
Prod Losses
Volume end of Prod Year 1
Prod Losses
Volume end of Prod Year 2
Prod Losses
Volume end of Prod Year 3
Prod Losses
Volume end of Prod Year 4
Culls

[illegible]

Source: Chrystalball

The wood cost must then be added to the extracted cost.

An example of calculated wood cost.

[illegible]

Source: Crystalball

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 mind²⁷ 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.

t Emphasis was placed on optimizing the key variables in the winery to determine a standard

l' To manage and optimize key variables

t To measure performance

I To create feedback

t 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

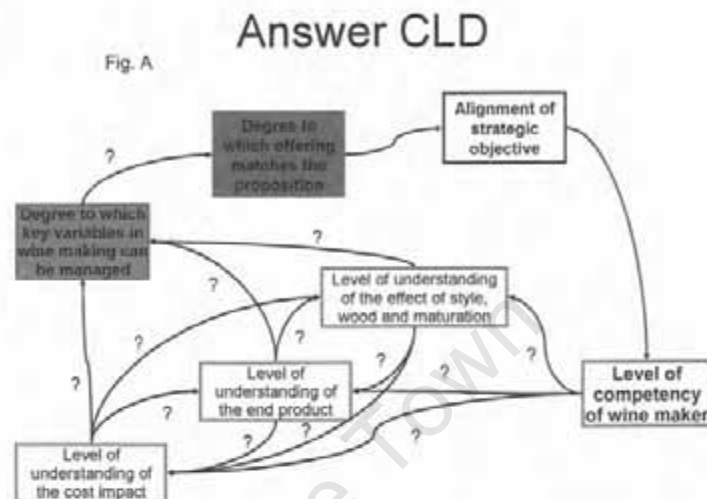
5.8 Ethics

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

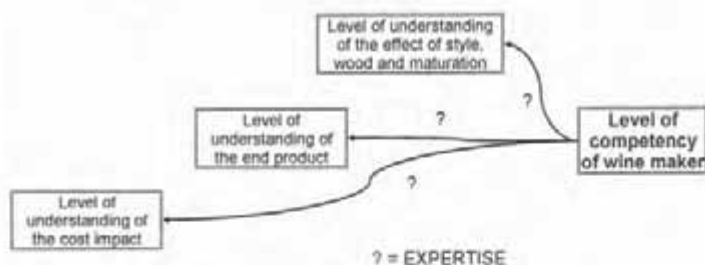
This is done by a four step process that constructs a CLD that form the basis of the strategic options.

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

Fig. 8



Expertise

According to Richard E. Boyatzis in Competencies in the 21st century²⁹ 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 Great³⁰. 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.

²⁸ Competencies in the 21st century. Richard E. Boyatzis. Journal of Management Development Vol. 27 Number 1. 2008 pp. 5-12

²⁹ Competencies in the 21st century. Richard E. Boyatzis. Journal of Management Development Vol. 27 Number 1. 2008 pp. 5-12

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:
 - i. How to develop the required management *ability*- the knowledge, skill, and talent to successfully manage the increased understanding of competitiveness;
 - ii. 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;
 - iv. **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.

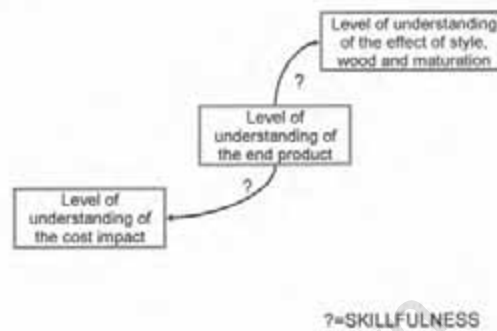
Fig B illustrates the logic of this process.

Step 2

An increased level of understanding of the end product will enhance your ability to obtain higher levels of **skilfulness** in your level of understanding of the effect of style, wood and maturation 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.

Fig. D



Skilfulness

In the journal, Skills and competency management by Mark Homer³¹, 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 effect of style, wood and maturation and of the understanding of the financial impact.

This logic is illustrated in Fig C.

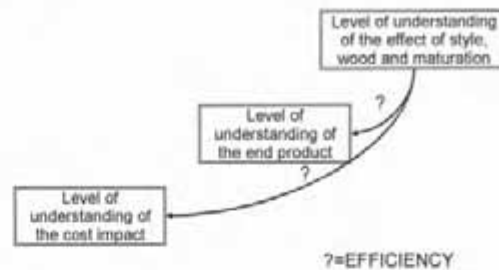
³¹ Skills and competency management, Mark Homer, Industrial and Commercial Training, Volume 33, Number 2, 2001, pp. 59-62, MCB University Press

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.

Fig. C



Efficiency

The style, wood and maturation needs to be dealt with in great efficiency.

The most important issues of the viticulturist is:

1. Knowledge³²
2. Technical Application³³
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.

³² Phenolics in Grapes, Andrew L. Waterhouse and UC Davis Students of Natural Products of Wine, 2001

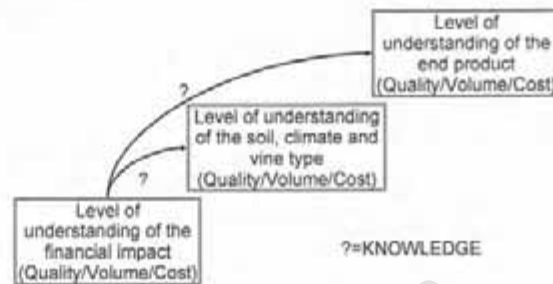
³³ Phillip Freese, Tasting the Vineyard, 2008

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 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.³⁴

Fig:E



Knowledge

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

³⁵ 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,³⁶

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.

³⁶ Michael Porter, *Competitive Strategy*, Free Press, 2004

Step 5

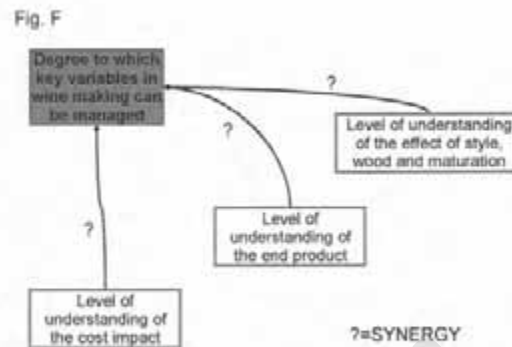
An increased level of understanding of the end product, of the effect of style, wood and maturation and of the financial impact will facilitate the synergy that will improve the degree to which the variables in winemaking can be managed.

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
- L Knowledge of vine type
- Condition at time of ripening
- Wood application
- L Choice of yeast
- Facilities on hand
- it 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
- it Volume demanded

Cost:

- it Availability of funds
- Budget
- Wood application
- ¹¹. 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

L Communication — Volume required

- Measure against objectives
- Strict processing controls

Cost:

L Information systems critical

Must know what budget is

Know how to budget

Know what effect is on finance of decisions made

University of Cape Town

8 Appendix C

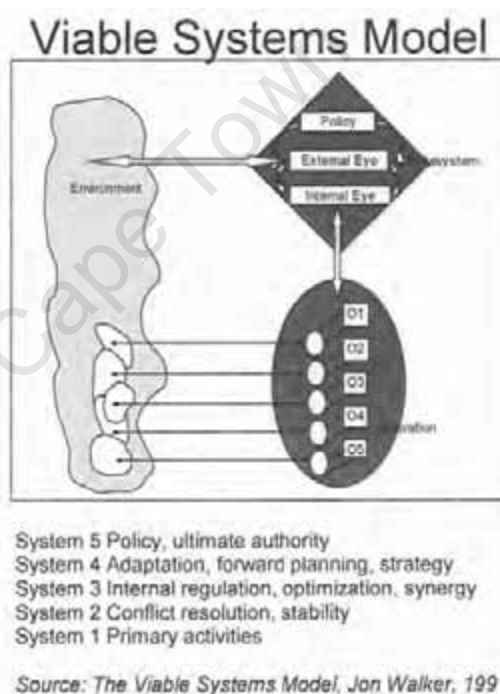
8.1 The Wine Business Simulation Model: An Integrated approach

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 VSM³⁹ 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 shifts in competitiveness.*"⁴⁰ 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.



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

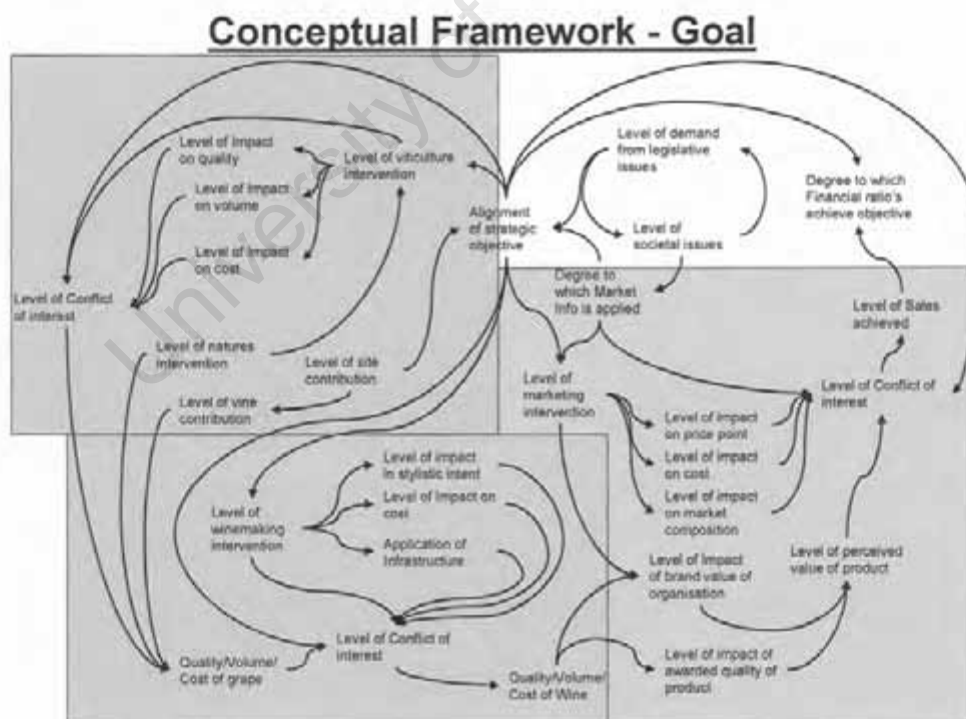
To create a tool that can assist the wine business manager, viticulturist, winemaker and sales manager in:

- t Determining Set of Targets within the bigger Business Objective
- t Managing Key Variables
- t Measuring Performance
- V 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?

if Quality
t Volume
f Cost

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

it Quality
it Volume
It Cost

In relation to the proposition of:

f Quality
V Volume
t Cost

Checkpoint



Interaction between Research Question, Research Methodology and Validity

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

- Determining Set of Targets to achieve proposition
- Measuring Performance(Match to proposition)
- Creating Feedback(Manage variances)

To what degree does the offering matches the proposition of Quality, Volume and Cost

Research Goal

Conceptual Framework

Research Question

Firstly: What are the key variables in winemaking that influences the outcome of Quality, Volume and Cost
Secondly: Degree to which these variables in winemaking affects the outcome of Quality, Volume and Cost

8.5 Research Methodology

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

8.6 Issues of Validity

- f** Time of Research: Financial Year end for researcher-Limited time to test logic of model
- f** Limited to Stellenbosch, Paarl and Franschhoek region
Researcher's current understanding of winemaking processes and variables

University of Cape Town

10 Appendix C

Example of information from business plan (Case Study B) for management decisions.

Pages 1 — 41

University of Cape Town

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

CULT ID	CULT CODE	CULTIVAR	HARVEST MONTH
Cul01	PIN	Pinotage	01/03/2010
Cul02	CS	Cabernet Sauvignon	01/04/2010
Cul03	MER	Merlot	01/04/2010
Cul04	SHZ	Shiraz	01/04/2010
Cul05	SBL	Sauvignon Blanc	01/02/2010
Cul06	CY	Chardonnay	01/02/2010

Actual

Vineyard (cont)

Block information and yield history

FarmName	BlockCode	PlantYear	Cultivar	RootStock	Clone	NoOfVines	Size(Ha)	QualityLeve	Options	2007	2008	2009
							96.900			509.95	589.91	568.22
1	01	1979	Cul05			16,890	4.560	2	1	15.96	29.64	33.288
1	04	1980	Cul05			13,297	3.590	2	1	14.00	13.64	26.566
1	05	1981	Cul05			8,593	2.320	2	1	10.44	11.37	15.312
1	06	2001	Cul03	R99	MO343	15,779	4.260	2	1	32.80	32.80	29.82
1	07	2008	Cul05			31,188	8.420	2	1	-	-	
1	08	1985	Cul06			13,297	3.590	2	1	12.92	21.18	17.95
1	10	1986	Cul03	R99/R110		37,299	10.070	2	1	45.32	54.38	80.56
1	11	1979	Cul01			7,852	2.120	2	1	18.02	12.08	12.932
1	12	1975	Cul01			20,891	5.640	2	1	38.92	23.69	32.712
1	13	1996	Cul01		48A	11,112	3.000	2	1	21.00	18.00	28.5
1	14	1997	Cul01		48B	12,038	3.250	2	1	21.13	21.13	27.625
1	15	1976	Cul01			17,779	4.800	2	1	26.40	14.88	24.48
1	20	1997	Cul01		48B	4,297	1.160	2	1	6.96	6.03	9.976
1	21	1990	Cul02	R99/R110	CS1/169/15	9,556	2.580	2	1	14.96	20.90	13.674
1	22	2009	Cul04				4.280	2	1	-	-	
1	24	1982	Cul06			7,260	1.960	2	1	7.25	14.70	6.468
1	25	1992	Cul06	R110	76/5/117	18,224	4.920	2	1	18.20	46.74	21.648
1	26	1994	Cul06	R110	117/95	13,186	3.580	2	1	29.19	32.40	19.7936
1	27	2000	Cul02	R110		21,039	5.680	2	1	42.03	56.80	41.464
1	29	1978	Cul05			6,445	1.740	2	1	8.00	9.57	12.876
1	30	2002	Cul03			36,336	9.810	2	1	87.31	110.85	78.48
1	34	1998	Cul04			20,705	5.590	2	1	39.13	39.13	34.099

Actual

Vineyard (cont)

- **Assumptions are formatted as factors in calculations**
- **Factors will be based on previous recordings, industry averages or intent**

Vineyard (cont)

Yield: Ton per ha per quality

CULT ID	CULT CODE	OPTION	TON / HA QUALITY 1	TON / HA QUALITY 2	TON / HA QUALITY 3	TON / HA QUALITY 4	TON / HA QUALITY 5
Cul01	Pinotage	1	5.00	7.50	7.50	12.00	15.00
Cul02	Cabernet Sauvignon	1	5.00	7.00	7.00	12.00	15.00
Cul03	Merlot	1	5.00	8.00	8.00	12.00	15.00
Cul04	Shiraz	1	5.00	7.00	7.00	10.00	15.00
Cul05	Sauvignon Blanc	1	5.00	7.00	7.00	15.00	15.00
Cul06	Chardonnay	1	5.00	7.50	7.50	12.00	15.00

Factor

Vineyard (cont)

Yield factor for coming into production

YEAR	OPTIONS	1	2	3	4	5	6	7
HARVEST INTRO	1	0%	0%	30%	70%	100%	100%	100%

LIFESPAN	40
----------	----

Total lifespan of vine

Factor

Vineyard (cont)

Average industry selling price of grapes

QUALITY 2 <i>Update</i>	CULT CODE	QUALITY	OPTION	PRICE PER TON 2009	PRICE PER TON 2010	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
						12%	11%	8%	7%	7%	6%	6%	6%	6%	6%
Cul01	Pinotage	2	1	-	4,000	4,000	4,440	4,795	5,131	5,490	5,819	6,169	6,539	6,931	7,347
Cul02	Cabernet Sauvignon	2	1	-	4,000	4,000	4,440	4,795	5,131	5,490	5,819	6,169	6,539	6,931	7,347
Cul03	Merlot	2	1	-	4,000	4,000	4,440	4,795	5,131	5,490	5,819	6,169	6,539	6,931	7,347
Cul04	Shiraz	2	1	-	4,000	4,000	4,440	4,795	5,131	5,490	5,819	6,169	6,539	6,931	7,347
Cul05	Sauvignon Blanc	2	1	-	4,000	4,000	4,440	4,795	5,131	5,490	5,819	6,169	6,539	6,931	7,347
Cul06	Chardonnay	2	1	-	4,000	4,000	4,440	4,795	5,131	5,490	5,819	6,169	6,539	6,931	7,347
						-	-	-	-	-	-	-	-	-	-

Factor

Vineyard (cont)

Quality intent per block

Pinotage		Cul01		19,970										
Farm Name	Block Code	Plant Year	Cultivar	Size (Ha)	QLY1	QLY2	QLY3	QLY4	QLY5	QLY6	QLY7	QLY8	QLY9	QLY10
1	12	1975	Cul01	5.640	2	2	2	2	2	2	2	2	2	2
1	15	1976	Cul01	4.800	3	3	3	3	3	3	3	2	2	2
1	11	1979	Cul01	2.120	3	3	3	3	3	3	2	2	2	2
1	13	1996	Cul01	3.000	2	2	2	2	2	2	2	2	2	2
1	14	1997	Cul01	3.250	2	2	2	2	2	2	2	2	2	2
1	20	1997	Cul01	1.160	3	3	3	3	3	3	2	2	2	2

Cabernet Sauvignon		Cul02		8,260										
Farm Name	Block Code	Plant Year	Cultivar	Size (Ha)	QLY1	QLY2	QLY3	QLY4	QLY5	QLY6	QLY7	QLY8	QLY9	QLY10
1	21	1990	Cul02	2.580	2	2	2	2	2	2	2	2	2	2
1	27	2000	Cul02	5.680	3	3	3	3	3	3	3	3	3	3

Merlot		Cul03		24,140										
Farm Name	Block Code	Plant Year	Cultivar	Size (Ha)	QLY1	QLY2	QLY3	QLY4	QLY5	QLY6	QLY7	QLY8	QLY9	QLY10
1	10	1986	Cul03	10.070	3	3	3	3	3	3	3	3	3	3
1	06	2001	Cul03	4.260	2	2	2	2	2	2	2	2	2	2
1	30	2002	Cul03	9.810	3	3	3	3	3	3	3	3	3	3

Factor

Vineyard (cont)

Quality intent per block

Shiraz		Cul04			9.870									
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	2
1	22	2009	Cul04	4.280	3	3	3	3	3	3	3	3	3	3

Sauvignon Blanc		Cul05			20.630									
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	3
1	01	1979	Cul05	4.560	3	3	3	3	3	3	3	3	3	3
1	04	1980	Cul05	3.590	3	3	3	3	3	3	3	3	3	3
1	05	1981	Cul05	2.320	3	3	3	3	3	3	3	3	3	3
1	07	2008	Cul05	8.420	3	3	3	3	3	3	3	3	3	3

Chardonnay		Cul06			14.030									
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	3
1	08	1985	Cul06	3.590	3	3	3	3	3	3	3	3	3	3
1	25	1992	Cul06	4.920	2	2	2	2	2	2	2	2	2	2
1	26	1994	Cul06	3.560	2	2	2	2	2	2	2	2	2	2

Factor

	Actuals	Average
2007	45.315	
2008	54.378	
2009	80.560	
2010		60.084

	2010	2011	2012	2013
Visual Quality	Q3	Q3	Q3	Q3
Quality Ton/Ha	8.0	8.0	8.0	8.0
Forecast	80.560	80.560	80.560	80.560
	100.0%	100.0%	100.0%	100.0%

Farm Name	Middelveld
Block Name	10
Cultivar Code	Cul03
Cultivar	Merlot
Size(Ha)	10.070
Plantyear	1986

	Actuals	Average
2007	45,315	
2008	54,378	
2009	80,560	
2010		60,084

Factor

Vineyard (cont)

Budget

3) COST PER HECTARE										
PRODUCTION COST	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
NON PRODUCTIVE	-	-	-	-	-	-	-	-	-	-
PRODUCTIVE	2,425,752	2,961,843	3,346,608	3,580,870	3,831,531	4,061,423	4,054,533	4,071,753	4,316,058	4,482,950
COST OF PRODUCTION	2,425,752	2,961,843	3,346,608	3,580,870	3,831,531	4,061,423	4,054,533	4,071,753	4,316,058	4,482,950
INFLATION FIGURE	-	11%	8%	7%	7%	6%	6%	6%	6%	6%
QUALITY LEVEL 1 HECTARES	-	-	-	-	-	-	-	-	-	-
QUALITY LEVEL 2 HECTARES	32.80	32.80	32.80	32.80	32.80	32.80	30.44	30.44	30.44	30.44
QUALITY LEVEL 3 HECTARES	51.40	59.82	64.10	64.10	64.10	64.10	60.82	56.02	56.02	54.28
QUALITY LEVEL 4 HECTARES	-	-	-	-	-	-	-	-	-	-
QUALITY LEVEL 5 HECTARES	-	-	-	-	-	-	-	-	-	-
HECTARES IN PRODUCTION	84.20	92.62	96.90	96.90	96.90	96.90	91.26	86.46	86.46	84.72
HECTARES %	86.8%	95.6%	100.0%	100.0%	100.0%	100.0%	94.2%	89.2%	89.2%	87.4%
COST PER HECTARE	28,809	31,978	34,537	36,954	39,541	41,814	44,428	47,094	49,920	52,915
PRODUCTION COST	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
PRODUCTION COST	2,425,752	2,961,843	3,346,608	3,580,870	3,831,531	4,061,423	4,054,533	4,071,753	4,316,058	4,482,950
PRODUCTION RECOVERY	2,242,852	2,870,043	3,281,965	3,187,781	3,379,018	3,681,787	3,810,468	3,692,782	3,914,317	4,067,006
	92.4%	86.8%	86.4%	89.0%	88.2%	88.2%	89.0%	90.7%	90.7%	90.7%
GRAPE SALES VALUE	588,682	705,394	874,877	1,026,842	1,098,721	1,164,545	1,216,351	1,243,433	1,318,039	1,316,585
GRAPE SALES COST	583,614	704,388	877,058	1,031,798	1,083,707	1,159,329	1,211,601	1,240,632	1,315,069	1,311,883
GRAPE SALES PROFIT	4,768	1,006	(2,181)	(4,957)	5,014	5,315	4,750	2,801	2,970	4,701
GRAPE RECOVERY PROFIT/(LOSS)	(183,170)	(391,800)	(454,641)	(393,120)	(452,516)	(479,667)	(444,046)	(379,001)	(401,741)	(418,864)
NETT GRAPE PROFIT/(LOSS)	(178,403)	(390,794)	(456,823)	(398,076)	(447,501)	(474,351)	(439,296)	(376,199)	(398,771)	(414,163)
GRAPE PROCUREMENT	154,930	181,690	227,893	288,233	305,831	324,181	343,632	459,587	487,162	516,392

Should be 100% if all vineyards are in full production

Calc

Vineyard (cont)

- **Calculations are made with all relevant actuals and factors to provide a forecast, minimizing uncertainty**

[illegible][illegible][illegible][illegible]

[illegible][illegible][illegible][illegible]

Vineyard (cant)

Tons produced per quality level

[illegible]

[illegible]

Tons produced per quality level

[illegible]

Vineyard (cont)

Tons produced per quality level

[illegible]

Calc

Vineyard (cant)

Tonnage required per cultivar per quality

[illegible]

Calc

Vineyard (cont)

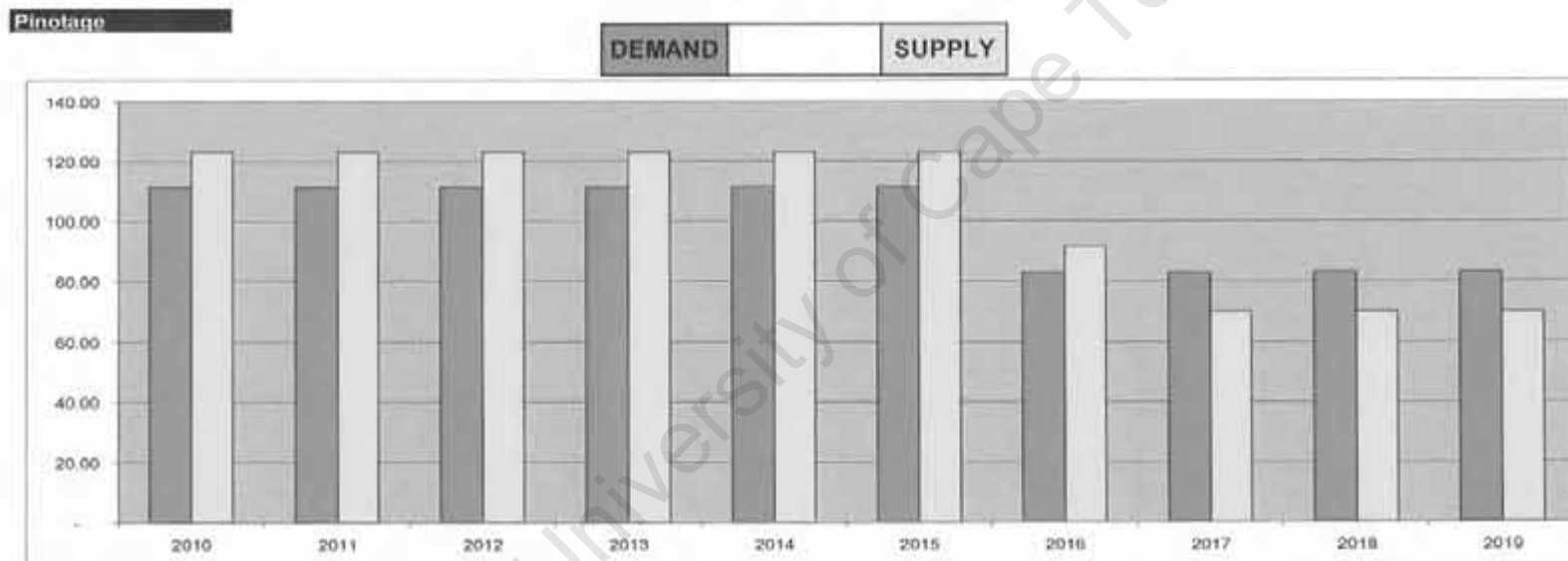
Tonnage over/under produced per cultivar per quality

[illegible]

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

Liters extracted per ton of grapes

CULT ID	CULT CODE	OPTION	L / TON Q1	L / TON Q2	L / TON Q3	L / TON Q4	L / TON Q5
Cul01	PIN	1	680	700	700	700	700
Cul02	CS	1	660	660	660	700	700
Cul03	MER	1	635	650	670	700	700
Cul04	SHZ	1	635	650	670	700	700
Cul05	SBL	1	680	700	720	700	700
Cul06	CY	1	680	700	700	700	700

Factor

Winery (cont)

Percentage loss per liter per month during production

CULT ID	CULT CODE	OPTION	TON / HA Q1	TON / HA Q2	TON / HA Q3	TON / HA Q4	TON / HA Q5
Cul01	PIN	1	0.50%	0.50%	0.50%	0.50%	0.50%
Cul02	CS	1	0.50%	0.50%	0.50%	0.50%	0.50%
Cul03	MER	1	0.50%	0.50%	0.50%	0.50%	0.50%
Cul04	SHZ	1	0.50%	0.50%	0.50%	0.50%	0.50%
Cul05	SBL	1	0.50%	0.50%	0.50%	0.50%	0.50%
Cul06	CY	1	0.50%	0.50%	0.50%	0.50%	0.50%

Factor

Winery (cont)



BULK ID	BULK CODE	BULK DESCRIPTION	OPTION	BULK YEAR	HARVEST MONTH	HARVEST YEAR	HARVESTED	PRODUCTION TIME	HARVEST DATE	FIN YEAR ADJUSTMENT	FIN YEAR MONTH	FINANCIAL YEAR
B2W01	WB0201	Pinotage	1	2011	4	2010	2008	14	01/04/2010	10	0	2010
B2W02	WB0202	Cabernet	1	2012	4	2010	2008	15	01/04/2010	10	0	2010
B2W03	WB0203	Merlot	1	2012	3	2010	2008	18	01/03/2010	9	0	2010
B2W04	WB0204	Shiraz	1	2011	3	2010	2008	15	01/03/2010	9	0	2010
B2W05	WB0205	Sauvignon Blanc	1	2010	2	2010	2010		01/02/2010	8	0	2010
B2W06	WB0206	Chardonnay	1	2010	2	2010	2010	3	01/02/2010	8	0	2010
B2W07	WB0207		1	2010	2	2010	2010	0	01/02/2010	8	0	2010

Factor

Winery (cont)

Production losses with bottling

BULK ID	BULK CODE	OPTION	BOTTLING LOSS Q1	BOTTLING LOSS Q2	BOTTLING LOSS Q3	BOTTLING LOSS Q4	BOTTLING LOSS Q5
B2W01	WB0201	1	2.00%	1.00%	1.00%	2.00%	2.00%
B2W02	WB0202	1	2.00%	1.00%	1.00%	2.00%	2.00%
B2W03	WB0203	1	2.00%	1.00%	1.00%	2.00%	2.00%
B2W04	WB0204	1	2.00%	1.00%	1.00%	2.00%	2.00%
B2W05	WB0205	1	2.00%	1.00%	1.00%	2.00%	2.00%
B2W06	WB0206	1	2.00%	1.00%	1.00%	2.00%	2.00%
B2W07	WB0207	1	2.00%	1.00%	1.00%	2.00%	2.00%
B2W08	WB0208	1	2.00%	1.00%	1.00%	2.00%	2.00%
B2W09	WB0209	1	2.00%	1.00%	1.00%	2.00%	2.00%
B2W10	WB0210	1	2.00%	1.00%	1.00%	2.00%	2.00%
B3W01	WB0301	1	2.00%	1.00%	1.00%	2.00%	2.00%
B3W02	WB0302	1	2.00%	1.00%	1.00%	2.00%	2.00%
B3W03	WB0303	1	2.00%	1.00%	1.00%	2.00%	2.00%
B3W04	WB0304	1	2.00%	1.00%	1.00%	2.00%	2.00%
B3W05	WB0305	1	2.00%	1.00%	1.00%	2.00%	2.00%
B3W06	WB0306	1	2.00%	1.00%	1.00%	2.00%	2.00%

Factor

Winery

- **Follow the build up of the costs as it develops in the winemaking process**

University of Cape Town

Winery (cont)

Extraction of juice from grapes

Pinotage	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cu101	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume
PRODUCED	64.83	68.41	68.41	68.41	68.41	68.41	68.41	68.41	68.41	68.41
GRAPES PURCHASED	-	-	-	-	-	-	-	-	-	-
LITERS PURCHASED	-	-	-	-	-	-	-	-	-	-
	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
PRODUCED	248,039.64	291,684.15	315,019.35	337,070.48	357,294.42	378,731.94	401,456.24	425,543.28	451,076.45	478,140.66
GRAPES PURCHASED	-	-	-	-	-	-	-	-	-	-
LITERS PURCHASED	-	-	-	-	-	-	-	-	-	-
TOTAL	248,039.64	291,684.15	315,019.35	337,070.48	357,294.42	378,731.94	401,456.24	425,543.28	451,076.45	478,140.66
	Price	Price	Price	Price	Price	Price	Price	Price	Price	Price
PRODUCED	3,841.25	4,263.79	4,604.90	4,927.24	5,222.87	5,536.24	5,868.42	6,220.82	6,593.76	6,989.38
GRAPES PURCHASED	4,000.00	4,440.00	4,795.20	5,130.96	5,490.02	5,819.43	6,165.59	6,538.71	6,931.03	7,346.69
LITERS PURCHASED	-	-	-	-	-	-	-	-	-	-
	Liters	Liters	Liters	Liters	Liters	Liters	Liters	Liters	Liters	Liters
PRODUCED	45,383.08	47,886.72	47,886.72	47,886.72	47,886.72	47,886.72	47,886.72	47,886.72	47,886.72	47,886.72
GRAPES PURCHASED	-	-	-	-	-	-	-	-	-	-
LITERS PURCHASED	-	-	-	-	-	-	-	-	-	-
TOTAL	45,383.08	47,886.72	47,886.72	47,886.72	47,886.72	47,886.72	47,886.72	47,886.72	47,886.72	47,886.72
	R/Liter	R/Liter	R/Liter	R/Liter	R/Liter	R/Liter	R/Liter	R/Liter	R/Liter	R/Liter
PRICE PER LITER	5.49	6.09	6.58	7.04	7.46	7.91	8.38	8.89	9.42	9.98
TOTAL REQUIREMENT	45,383.08	47,886.72	47,886.72	47,886.72	47,886.72	47,886.72	47,886.72	47,886.72	47,886.72	47,886.72

Value
divided
by liters

Follow
me

Calc

Winery (cont)

From winery
production cost –
next slide

Pinotage
PRICE PER LITRE
Litre Cost
Wood
Base Cost
Cellar Cost
Production Losses
Cost end of Prod Year 1
Cellar Cost
Production Losses
Cost end of Prod Year 2
Cellar Cost
Production Losses
Cost end of Prod Year 3
Cellar Cost
Production Losses
Cost end of Prod Year 3
Cul01

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
-	25.00	10.00	5.49	6.09	6.58	7.04	7.46	7.91	8.38	8.89	9.42	9.98
-	25.00	10.00	5.49	6.09	6.58	7.04	7.46	7.91	8.38	8.89	9.42	9.98
-	-	9.42	3.77	3.90	4.23	4.49	4.76	5.04	5.34	5.66	6.00	6.36
-	-	0.33	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20
-	25.00	11.94	9.37	10.21	10.98	11.67	12.37	13.11	13.89	14.74	15.62	16.55
-	-	-	9.98	10.58	11.22	11.89	12.60	13.36	14.16	15.01	15.91	16.87
-	-	-	0.29	0.33	0.36	0.38	0.40	0.42	0.45	0.48	0.51	0.54
-	25.00	19.94	19.65	21.12	22.52	23.94	25.37	26.90	28.51	30.22	32.03	33.95
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	25.00	19.94	19.65	21.12	22.52	23.94	25.37	26.90	28.51	30.22	32.03	33.95
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	25.00	19.94	19.65	21.12	22.52	23.94	25.37	26.90	28.51	30.22	32.03	33.95

Pinotage
LITRES
GRAPEOPENING
Prod Losses
Volume end of Prod Year 1
Prod Losses
Volume end of Prod Year 2
Prod Losses
Volume end of Prod Year 3
Prod Losses
Volume end of Prod Year 4
Cul01

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
-	-	23,076	45,383	47,887	47,887	47,887	47,887	47,887	47,887	47,887	47,887	47,887
-	-	1,152	958	958	958	958	958	958	958	958	958	958
-	-	21,922	44,475	46,929	46,929	46,929	46,929	46,929	46,929	46,929	46,929	46,929
-	-	-	2,324	2,346	2,346	2,346	2,346	2,346	2,346	2,346	2,346	2,346
-	-	21,922	42,252	44,583	44,583	44,583	44,583	44,583	44,583	44,583	44,583	44,583
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	21,922	42,252	44,583	44,583	44,583	44,583	44,583	44,583	44,583	44,583	44,583
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	21,922	42,252	44,583	44,583	44,583	44,583	44,583	44,583	44,583	44,583	44,583

R9.42 x inflation
= R9.98

Calc

Winery (cont)

Winery cost

HARVEST 2010																TOTALS					
				Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10						
				1	2	3	4	5	6	7	8	9	10	11	12	1,199,210					
				76,060	76,060	76,060	59,016	59,016	59,016	59,016	59,016	100,901	182,163	161,517	161,517	1,129,359					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Tot	
Pinotage	Years		Liters	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	TOTAL					
Cul01	2010	4	44,475	-	-	-	-	-	-	-	-	-	44,475	44,475	44,475	44,475	177,902				
Months in cellar	2009	10	21,922	21,922	21,922	21,922	21,922	21,922	21,922	21,922	21,922	21,922	21,922	-	-	210,225					
	2008		-	-	-	-	-	-	-	-	-	-	-	-	-						
	2007		-	-	-	-	-	-	-	-	-	-	-	-	-						
	Liters			21,922	21,922	21,922	21,922	21,922	21,922	21,922	21,922	21,922	66,398	66,398	44,475	44,475	397,127				
Years		Price	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	TOTAL						
2010	4	0.94	-	-	-	-	-	-	-	-	-	-	-	-	3.77						
2009	10	0.94	-	1	1	1	1	1	1	1	1	1	-	-	9.42						
2008		0.94	-	-	-	-	-	-	-	-	-	-	-	-							
2007		0.94	-	-	-	-	-	-	-	-	-	-	-	-							
	Liters		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	1.88	1.88	0.94	0.94	13.18						
Years			Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	TOTAL						
2010			-	-	-	-	-	-	-	-	41,885	41,885	41,885	41,885	167,539						
2009			20,646	20,646	20,646	20,646	20,646	20,646	20,646	20,646	20,646	20,646	-	-	206,456						
2008			-	-	-	-	-	-	-	-	-	-	-	-							
2007			-	-	-	-	-	-	-	-	-	-	-	-							
TOTAL COST			20,646	20,646	20,646	20,646	20,646	20,646	20,646	20,646	62,530	62,530	41,885	41,885	373,995						
Vintage			2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019						
2010			-	-	-	3.77	3.99	4.23	4.49	4.76	5.04	5.34	5.66	6.00	6.36						
2009			-	-	9.42	9.98	10.58	11.22	11.89	12.60	13.36	14.16	15.01	15.91	16.87						
2008			-	-	-	-	-	-	-	-	-	-	-	-	-						
2007			-	-	-	-	-	-	-	-	-	-	-	-	-						
TOTAL COST			-	-	9.42	13.75	14.57	15.45	16.38	17.36	18.40	19.50	20.67	21.91	23.23						
Vintage			2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019						
2010			-	-	9.42	3.77	3.99	4.23	4.49	4.76	5.04	5.34	5.66	6.00	6.36						
2009			-	-	-	9.98	10.58	11.22	11.89	12.60	13.36	14.16	15.01	15.91	16.87						
2008			-	-	-	-	-	-	-	-	-	-	-	-	-						
2007			-	-	-	-	-	-	-	-	-	-	-	-	-						
TOTAL COST			-	-	9.42	13.75	14.57	15.45	16.38	17.36	18.40	19.50	20.67	21.91	23.23						

Winery (cont)

Cost of product

Middelvlei Pinotage	HARVEST
B2P04	SALES YEAR

WINE COST PER LITER	
---------------------	--

WINE PER BOTTLE	0.750
-----------------	-------

BOTTLED WINE FROM STOCK	
BOTTLING COST	
BOTTLING RUN	1
BOTTLED VALUE (UNPACKED)	

BOTTLED WINE FROM STOCK(LAB)	
PACKAGING COST	
PACKAGING RUN	

COST PER BOTTLE	
-----------------	--

ROF PER BOTTEL	
COST PER BOTTLE	
GROSS PROFIT	
GROSS PROFIT %	

Bottles	
Average Income	

MARK UP	
---------	--

2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
27.27	19.84	21.33	22.74	24.18	25.63	27.17	28.79	30.83	32.36
20.45	14.88	16.00	17.06	18.13	19.22	20.38	21.59	22.90	24.27
-	-	-	-	-	-	-	-	-	-
4.82	5.05	5.27	5.51	5.79	6.08	6.38	6.70	7.03	7.39
-	-	-	-	-	-	-	-	-	-
25.27	19.94	21.27	22.57	23.92	25.30	26.76	28.29	29.93	31.65
-	-	-	-	-	-	-	-	-	-
2.04	2.14	2.23	2.33	2.45	2.67	2.70	2.84	2.98	3.13
-	-	-	-	-	-	-	-	-	-
27.31	22.07	23.50	24.90	26.37	27.87	29.46	31.13	32.91	34.78
35.91	39.03	40.61	42.32	45.04	47.03	49.18	51.24	53.38	55.62
27.31	22.07	23.50	24.90	26.37	27.87	29.46	31.13	32.91	34.78
8.59	16.96	17.11	17.42	18.67	19.16	19.72	20.11	20.48	20.85
23.93%	43.45%	42.13%	41.16%	41.48%	40.74%	40.11%	39.24%	38.36%	37.48%
38,748	37,332	37,332	37,332	37,332	37,332	37,332	37,332	37,332	37,332
38.91	39.03	40.61	42.32	45.04	47.03	49.18	51.24	53.38	55.62
31.6%	76.8%	72.8%	69.9%	70.8%	68.8%	67.0%	64.6%	62.2%	59.9%

$R19.65 \div (100-1)\%$
1% loss for bottling

From packaging cost
on next slide

Calc

[illegible][illegible]

Required liters

[illegible]

Similar traceability for
liters

Calc

Market

Objective, sales target and growth plan

[illegible]

All volume requirements
calculated from here

Objective

Market (cont)

Pricing strategy

MARKET	MARKET CODE	Middelviei Pinotage	B2P04	CURRENCY	OPTION	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Proelokaal	1	Middelviei Pinotage	B2P04	R	1	69.74	75.32	81.34	87.85	94.88	102.47	110.67	116.20	122.01	128.11
Suid-Afrika	2	Middelviei Pinotage	B2P04	R	1	35.11	37.92	40.95	44.23	47.77	51.59	55.72	58.50	61.43	64.50
Duitsland	3	Middelviei Pinotage	B2P04	€	1	23.10	24.20	24.20	24.20	25.30	25.30	25.30	26.06	26.84	27.63
Noorwee	4	Middelviei Pinotage	B2P04	€	1	-	-	-	-	-	-	-	-	-	-
Holland	5	Middelviei Pinotage	B2P04	€	1	42.00	44.00	44.00	44.00	46.00	46.00	46.00	47.38	48.80	50.27
Swede	6	Middelviei Pinotage	B2P04	€	1	29.90	41.80	41.80	41.80	43.70	43.70	43.70	45.01	46.35	47.75
Denemarke	7	Middelviei Pinotage	B2P04	€	1	-	-	-	-	-	-	-	-	-	-
Oostenryk	8	Middelviei Pinotage	B2P04	€	1	36.75	38.50	38.50	38.50	40.25	40.25	40.25	41.46	42.70	43.98
Dubai	9	Middelviei Pinotage	B2P04	€	1	-	-	-	-	-	-	-	-	-	-
UK	10	Middelviei Pinotage	B2P04	£	1	-	-	-	-	-	-	-	-	-	-
China	11	Middelviei Pinotage	B2P04	\$	1	-	-	-	-	-	-	-	-	-	-

Objective

Market (cont)

Market strategy

[illegible]

Objective

[illegible]

Middelveld Pinotage	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Rustenburg	41,844	55,134	59,544	64,308	68,453	75,000	81,000	85,060	89,313	93,778
Suid-Afrika	888,214	882,538	737,141	796,113	889,803	928,686	1,002,873	1,083,016	1,105,687	1,160,951
Duitland	128,600	116,160	116,160	116,160	121,440	121,440	121,440	125,083	128,836	132,701
Noonwes	-	-	-	-	-	-	-	-	-	-
Holland	468,112	\$28,000	\$28,000	\$28,000	\$52,000	\$52,000	\$52,000	\$58,580	\$85,517	\$83,185
Sweide	47,880	75,240	75,240	75,240	78,660	78,660	78,660	81,820	83,450	85,954
Denemark	-	-	-	-	-	-	-	-	-	-
Oostenryk	39,690	-	-	-	-	-	-	-	-	-
Dubai	-	-	-	-	-	-	-	-	-	-
UK	-	-	-	-	-	-	-	-	-	-
China	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
TOTAL	1,391,340	1,457,072	1,516,066	1,579,821	1,681,354	1,785,885	1,835,982	1,912,729	1,992,893	2,076,669
B2P04	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Reserve	-	-	-	-	-	-	-	-	-	-
Tasting	-	-	-	-	-	-	-	-	-	-
Promotions	-	-	-	-	-	-	-	-	-	-
Reference	-	-	-	-	-	-	-	-	-	-
Men in Black	-	-	-	-	-	-	-	-	-	-
TOTAL	-	-	-	-	-	-	-	-	-	-
GRAND TOTAL	1,391,340	1,457,072	1,516,066	1,579,821	1,681,354	1,785,885	1,835,982	1,912,729	1,992,893	2,076,669

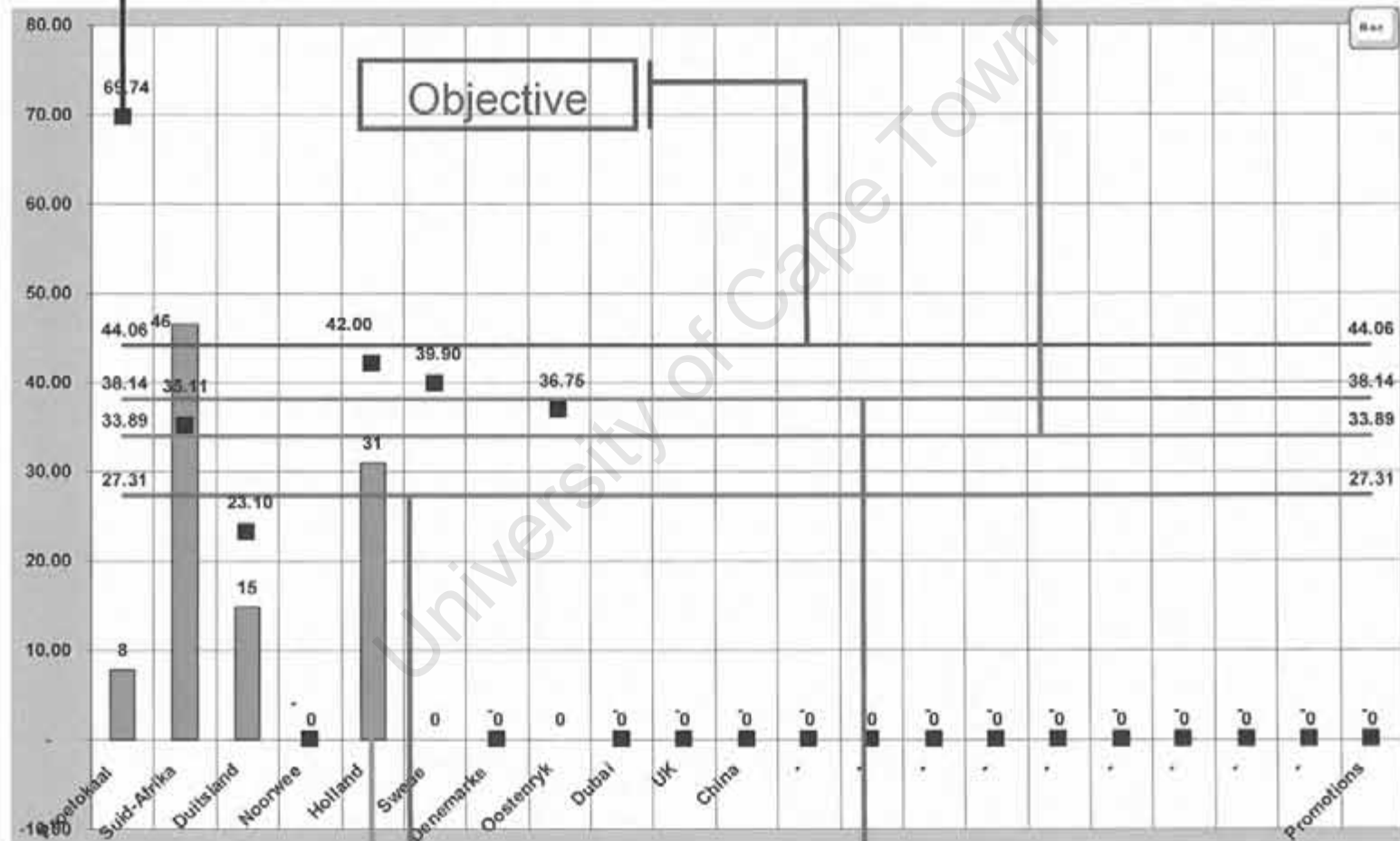


Price point
per market

Market (cont)

Production plus
marketing costs

Analysis of product performance



% of total sales
per market

Production Cost

Average return

38

Financials

Winery

FORECASTED INCOME STATEMENTS

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Wine Sales	7,631,604	7,884,217	8,848,771	10,537,518	12,086,763	13,088,845	13,700,648	14,130,068	14,745,705	15,366,448	16,062,635
Wine Cost of Sales	5,843,690	5,505,965	5,625,745	5,801,371	6,450,644	6,945,328	7,349,933	7,539,488	7,880,094	8,470,406	8,977,271
WINE GP	1,787,914	2,378,252	3,223,026	4,736,147	5,636,119	6,143,517	6,350,715	6,590,580	6,865,611	6,896,042	7,085,364
	23.4%	29.4%	42.9%	47.0%	46.5%	46.5%	46.6%	46.6%	46.8%	45.0%	44.1%
Other	489,510	588,562	708,394	874,877	1,026,842	1,098,721	1,164,645	1,216,351	1,243,433	1,318,589	1,316,686
Other cost	0	563,814	704,388	877,088	1,031,769	1,093,707	1,158,329	1,211,601	1,240,532	1,315,568	1,311,883
OTHER GP	489,510	24,748	1,004	2,181	4,957	5,014	5,315	4,750	2,801	2,970	4,701
GROSS PROFIT	2,276,854	2,513,079	4,227,632	6,913,988	8,620,162	9,149,530	9,418,030	9,805,330	9,796,423	8,621,540	7,000,055
MARKETING EXPENSES	2,683,881	1,732,905	1,845,380	2,100,903	2,247,966	2,382,844	2,525,815	2,677,364	2,838,005	3,008,286	3,188,783
Cellar door	252,800	252,800	300,752	303,212	324,437	343,603	364,537	386,410	409,584	434,170	460,220
Nakimul	2,683,881	1,480,105	1,544,628	1,797,691	1,923,529	2,039,241	2,161,277	2,290,954	2,428,411	2,574,116	2,728,563
NET WINE INCOME	-	560,574	2,379,731	3,033,063	3,372,196	3,766,696	3,890,216	3,917,586	3,921,417	3,913,864	3,901,273
OTHER EXPENSES	-	185,728	1,024,624	1,086,101	1,172,989	1,255,098	1,330,404	1,410,228	1,484,532	1,679,805	1,780,181
Admin	185,728	1,024,624	1,086,101	1,172,989	1,255,098	1,330,404	1,410,228	1,484,532	1,564,533	1,679,805	1,780,181
NET PROFIT BEFORE PRODUCTION VARIANCES	-	444,043	1,186,650	1,880,074	2,117,088	2,436,602	2,479,987	2,429,144	2,116,885	2,234,059	2,120,892
OVER(UNDER) RECOVERIES IN PRODUCTION	-	182,170	-	454,641	-	452,518	-	479,667	444,048	379,001	401,741
Grape	-	182,170	-	454,641	-	452,518	-	479,667	444,048	379,001	401,741
Winemaking	-	-	-	-	-	-	-	-	-	-	-
EBIT	-	647,219	1,186,650	2,404,715	2,117,088	2,889,120	2,900,321	2,908,811	2,560,934	2,613,800	2,522,633
FINANCE CHARGES	38,934	234,068	220,062	204,324	186,568	186,568	144,014	-	-	-	-
Interest	38,934	234,068	220,062	204,324	186,568	186,568	144,014	-	-	-	-
EBT	-287,944	-81,286	578,718	1,201,109	1,537,410	1,817,327	1,886,307	1,979,068	1,957,884	1,632,319	1,705,029

Financials (cont)

Winery

FORECASTED BALANCE SHEETS

ASSETS

Non Current Assets

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Plant & Equipment	445,021	445,021	445,021	445,021	445,021	445,021	445,021	445,021	445,021	445,021	445,021
Investments	-	-	-	-	-	-	-	-	-	-	-
Total Non Current Assets	445,021	445,021	445,021	445,021	445,021	445,021	445,021	445,021	445,021	445,021	445,021

Current Assets

Inventory	4,560,234	5,140,682	5,299,342	5,368,548	5,483,542	5,588,787	5,726,725	5,908,984	6,095,992	6,279,940	6,215,645
Trade & Non Trade Debtors	1,362,460	1,293,235	1,619,257	1,798,626	1,987,450	2,162,583	2,282,877	2,323,826	2,424,865	2,530,726	2,641,427
Bank Accounts	218,064	-	-	-	-	1,427,443	2,999,898	4,716,367	6,353,308	7,861,630	9,484,501
Total Current Assets	6,140,759	6,433,918	6,918,599	7,167,174	7,470,992	9,188,813	10,989,500	12,948,977	14,874,166	16,672,295	18,341,573
TOTAL ASSETS	6,585,780	6,878,938	7,363,620	7,612,194	7,916,012	9,613,833	11,434,520	13,393,998	15,319,186	17,117,316	18,786,593

EQUITY AND LIABILITIES

Capital & Reserves

Accumulated Profit / (Loss)	- 1,490,875	- 1,778,818	- 2,660,104	- 2,081,336	- 880,227	657,184	2,474,510	4,330,817	6,309,915	8,267,799	10,100,117
Profit / (Loss) for the Year	- 287,944	- 881,286	578,768	1,201,109	1,837,410	1,817,327	1,856,307	1,979,098	1,957,894	1,832,318	1,705,028
Total Capital & Reserves	- 1,778,818	- 2,660,104	- 2,081,336	- 880,227	657,184	2,474,510	4,330,817	6,309,915	8,267,799	10,100,117	11,805,145

Non Current Liabilities

Secured Loan	7,834,515	7,834,515	7,834,515	7,834,515	7,834,515	7,834,515	7,834,515	7,834,515	7,834,515	7,834,515	7,834,515
	7,834,515	7,834,515	7,834,515	7,834,515	7,834,515	7,834,515	7,834,515	7,834,515	7,834,515	7,834,515	7,834,515

Current Liabilities

Trade & Other Payables	455,169	- 417,659	- 522,950	- 580,879	- 641,861	- 695,192	- 730,812	- 750,431	- 783,127	- 817,316	- 853,067
Bank Overdraft		2,122,187	2,133,391	1,238,785	66,174	-	-	-	-	-	-
Instalment Sale Agreements	74,915										
Total Current Liabilities	530,083	1,704,528	1,610,441	657,906	- 575,687	- 695,192	- 730,812	- 750,431	- 783,127	- 817,316	- 853,067
TOTAL EQUITY AND LIABILITIES	6,585,780	6,878,938	7,363,620	7,612,194	7,916,012	9,613,833	11,434,520	13,393,998	15,319,186	17,117,316	18,786,593

Financials (cont)

