

MASTER

Assessing project's cash flows : implementing a value based investment evaluation in the beer business

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Assessing project's cash flows

Implementing a value based investment evaluation in the beer business

Zoeterwoude, November 2002

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Abstract

This thesis describes the redesign of the evaluation procedure of Heineken. This evaluation is structured into an economic, strategic and analytic justification. To ensure the project value is calculated in a transparent way, existing guidelines have been made clearer and nature-specific guidelines have been developed.

Keywords

Investment, capital budgeting, classification of investments, investment evaluation methods, cash flows

Executive summary

Heineken aims to be the best international brewing group in financial terms. Using Return On Equity as an indicator to measure the financial performance, it turns out that Heineken is the second best performing brewing group.

This report focuses on the evaluation of investments, which have an impact on the future financial performance of Heineken NV. The objective of the evaluation is to measure the value potential of investments for Heineken NV.

Heineken has one investment procedure that describes in general terms what cash flows should be taken into account and what methods should be used at the evaluation. To bring clarity in the investment portfolio, Heineken introduced the classification of investments to nature.

Because the current investment procedure has not been developed to deal with the characteristics of the different natures, not all relevant cash flows are taken into account. This could lead to acceptance of for Heineken not interesting (enough) opportunities and rejection of interesting investment opportunities.

Objective

Identify the characteristics of the different natures and develop clear guidelines on how these characteristics should be incorporated in the cash flow analysis and at the evaluation of investments.

After analysis of recent investment proposals, the following could be concluded:

- Not all required information is included in the investment proposal.
- Nature-specific characteristics are not (always) or in different ways incorporated at the cash flow analysis.

These two issues lead to the following:

- Managers evaluating investment proposals have doubt on the calculated economic value. Therefore they make their own calculations and assumptions.
- Because of this, managers focus more on the strategic benefits rather than on the economic and strategic aspects.
- Investments are not financially comparable with each other.

Three explanations have been identified.

1. In practise, OpCo's have difficulties in identifying and translating relevant aspects of investments into cash flows.
2. The current manual does not provide enough guidelines about how the data should be included and in what way the calculations should be made.
3. OpCo's are not provided with clear feedback on the completeness and rightness of their investment proposals.

Guidelines on cash flows

From the analysis of the Funds Planning and Application manual, it turned out that the guidelines provided are not clear enough. They do not state in what way cash

flows should be calculated. The guidelines have been adjusted and extended and are divided into:

- General guidelines that apply to all investments.
- Specific guidelines depending on the nature of the investment.

Evaluation of investments

To ensure Heineken evaluates all relevant aspects of the investment, this report proposes that Heineken structures its evaluation as follows:

1) Economic evaluation

To evaluate the economic aspects of investments, the Net Present Value, the Internal Rate of Return, and the Discounted Payback should be used.

The Net Present Value gives the value potential of the investment, the Internal Rate of Return the return percentage in relation to the WACC and the Discounted Payback the period that it takes to repay the initial capital expenditure.

2) Strategic evaluation

Some investment projects cannot only be justified on their economic aspects. A description of the strategic aspects should be included in the investment proposal. These are relevant aspects of the investment that cannot be translated into cash flows for the economic evaluation. One can think of brand health increase, quality of the beer taste, etc.

3) Analytic methods

To show the robustness of the cash flows on the Net Present Value, Heineken should use two analytic methods. Sensitivity analysis is to show the impact on the NPV if one of the assumptions made at the proposal changes. Forecast analysis should be included to describe in what way the forecasted volume is estimated.

Implementation

- Revision of the manual

The current guidelines have been made clearer and new guidelines have been developed to incorporate the characteristics of the different natures. The structure of the investment proposal has also been adjusted to take all relevant aspects into account.

- Feedback to OpCo's

By giving feedback to OpCo's on the completeness and rightness of the proposal, the quality of the investment proposals is expected to increase in time, because OpCo's learn how to make a proper proposal.

- Training managers

A course will be developed for (financial) managers to teach them how to make a proper proposal as well as other issues regarding financial management.

In the training course for technical directors and staff, attention will also be paid on how to make a proper proposal and what the difference is between cost and cash.

Conclusions

- Because clear guidelines have been set, OpCo's know how to make the calculations. The proposal can therefore be evaluated on its content.
- Because the calculations are made in a transparent way, investments can be compared with each other on an economical basis.
- By structuring the proposal into economic, strategic and analytic aspects, all relevant issues regarding the investment are taken into account.
- By training managers and providing feedback, OpCo's have a better understanding of what is expected. The quality of the proposals will increase in time.

Using clear guidelines and incorporating nature-specific cash flows ensures a realistic project valuation. This determines whether a project adds value to Heineken and increases its financial performance.

Preface

The last part of the graduation program of the study Technology Management at Eindhoven University of Technology is to write a final thesis.

The objective of the assignment is to solve a business problem in a scientific well-founded basis. The deliverables are to describe the problem the company faces, to write a interim report about the orientation and analysis phase and to write a final report and present this to the supervisors [TUE, 1999].

This report is the final report about the assignment carried out at Heineken NV. The project was initiated at the Corporate Production Policy and Control department and is executed in close cooperation with Corporate Finance.

The main subject of the thesis is the evaluation of investments.

Investment decision-making is the process whereby resources are allocated in organisations in anticipation of future gain. Last year, Heineken invested € 784 million. This assignment analyses the investment procedure of Heineken and gives recommendations on how to adjust it.

I would like to thank the following persons. Firstly, I thank my supervisors, Ir. F.A. Mulder and Drs. Ing. M.F.M. Brantjes for giving me the opportunity to investigate such an interesting subject in real life and for the many pleasant discussions we had. Secondly, I thank Drs. F.P.D. van Bel and Dr. J.A. Keizer for their support offered and the constructive remarks on this thesis. Thirdly, I thank the managers at Heineken with whom I had great discussions and provided me with a lot of useful information. Fourthly, I thank Dr.Ir. J.J.T. Kleijn and Ir. S.A. van Doornik for reading this report and for their critical comments. Fifthly, I thank my colleagues of the R&D department for a wonderful time at Heineken. Finally, I thank Mr. J. Klerkx for his support and giving me a comfortable place to live.

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1. Introduction

This chapter is about the assignment carried out at Heineken NV, an international brewing company. It first gives a general description of Heineken in terms of its history, ownership, organisational structure and its strategy. Section 1.2 describes recent developments that are relevant for Heineken. Based on these observations is in Section 1.3 identified what problems Heineken faces. In Section 1.4 the objective of this assignment is stated as well as its deliverable. Section 1.5 describes the research plan. This chapter concludes with the structure of the report (Section 1.6).

1.1. The Heineken Company

In 1864, Gerard Heineken acquired the brewery “De Hooiberg” in Amsterdam. The brewery itself dated from 1592. In 1878, Heineken made a first attempt to go abroad by acquiring a brewery in Belgium. Shortly afterwards operations expanded nationwide and across the border. At this moment Heineken beer is available in more than 170 countries. The company’s product portfolio consists of more than 80 brands. With more than 110 breweries in over 50 countries and export activities all over the world, Heineken is one of the most international brewery groups in the world. In 2001, the total beer volume of the Heineken Group amounted to 105 million hectolitres. Most of this volume is sold in Europe, Heineken’s main market.

Ownership

Currently, L’Arche, the investment company of the Heineken family, indirectly controls Heineken NV. As is shown in Figure 1.1 L’Arche owns 50,005% of the shares issued of Heineken Holding NV. The other shares are listed on the Amsterdam Stock Exchange (AEX). Heineken Holding NV owns 50,005% of Heineken NV. The rest of the shares of Heineken NV are also listed on the AEX.

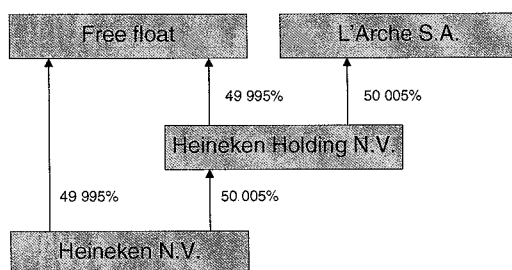


Figure 1.1. Ownership of the company

With this construction, Heineken is prevented from being acquired by other companies. Another implication of this construction is that if Heineken wants to issue new stock, L’Arche has to acquire 25,005% of the stocks issued. Otherwise the control over the firm will change.

From now on, whenever Heineken is mentioned, Heineken N.V. is meant.

Organisational model

Heineken applies a decentralised management model. The Operating Companies (OpCo's) and Corporate Staff departments within Heineken work within a clear framework, set by the Executive Board, and bear responsibility for their results. The Corporate Staff departments, the Export Department and the main European Operating Companies report directly to the Executive Board. Smaller companies report to the relevant clusters. The management of the clusters also report directly to the Executive Board [see organisational chart of Heineken, Figure 1.2].

This decentralised management model has its influence on the capital budgeting process of Heineken and the way investments are submitted and evaluated. Capital budgeting, of which the evaluation of investment proposals is a component, is the process of allocating funds among alternative investment opportunities [Shapiro, 2000]. Because of this decentralised model, Operating Companies can define its own strategy and are held responsible for their results. They have to identify what investments are required to implement the chosen strategy. Investments that have a capital expenditure of more than € 500,000 need to be approved by the executive board.

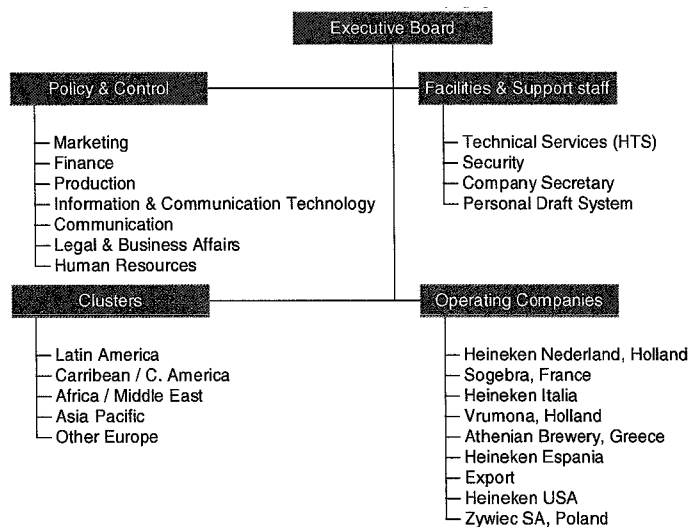


Figure 1.2. Organisational chart Heineken NV

Strategy

Heineken seeks long-term profit growth by expanding in existing markets and entering new markets. Heineken aims to be the best international brewing group in terms of financial performance [Annual plan Heineken, 2002]. Heineken's driver to measure the financial performance is Economic Net Profit. How this driver is calculated is explained in Appendix A.

The annual report does not link Heineken's strategy with performance measurements. It only describes what the long-term vision on its performance should be in general terms.

1.2. Challenging developments

This section identifies what developments are relevant for Heineken. An analysis was made of the trend in the worldwide beer market, what Heineken's financial performance is in relation to its competitors and also is described what has changed at Heineken in terms of company focus.

1.2.1. Consolidation of the worldwide beer market

Heineken's main market is the beer market in Europe. This market is a mature market with little volume growth. Last years, the beer consumption per capita even decreased. This is due to the fact that people started drinking new sorts of alcoholic drinks, like Bacardi Breezers and that wine consumption increased [Financieel Dagblad, 08-04-2002]. Internal growth in the mature markets became therefore more difficult to achieve.

Another way for a company to grow by volume is by acquiring other companies. Two sorts of companies can be acquired. Acquiring companies in the mature beer market, which lead to a one-time growth and thereby focussing on synergy effects. Another way to grow is by acquiring companies in a potential growth market by focussing on entering the market and achieving internal growth in this market. The strategy to grow did not only apply to Heineken but also to its main competitors, Interbrew, Anheuser-Bush and SAB-Miller (a recent merger between South African Breweries and Miller corporation).

Below a short list of some acquisitions is shown to illustrate the consolidation in the beer market.

- May 2002: South African Breweries acquires a stake of 66% in Miller Corporation.
- February 2002: Heineken acquires Bravo International, a brewery in Russia
- February 2002: Interbrew acquires a stake of 12.6% in Damm, the second biggest brewery in Spain
- October 2001: Beck's (a German brewer) is acquired by Interbrew
- January 2001: Coors (an American brewer) acquires Carling, a British brewer

The consolidation in the beer market by acquiring other brewers remains to be important for the next few years. The annual plan of Heineken mentions that Heineken intends to play an active part in this process. In the coming years Heineken focuses its search for opportunities for further expansion mainly in Latin America, Asia Pacific and Russia, in view of this strong development potential, but attractive opportunities for growth may also arise in Germany and other parts of Europe and in Africa [Annual plan Heineken, 2002].

1.2.2. Financial performance

As is stated in the paragraph about Heineken's strategy, Heineken intends to be the best international brewing group in financial terms. The financial performance of Heineken and its main competitors is analysed using last year's results. The analysis describes the turnover, the Net Profit and to compare the financial performances of the companies, the Return On Equity (ROE). The ROE measures what Net Profit has been made in relation to the shareholder's equity.

Return on Equity (ROE) = (Net Profit / Shareholders equity) * 100%

In 2001, **Heineken** reported a turnover of € 9,163 million and an Economic Net Profit of € 715 million, an increase of 15%. Heineken reported a ROE of **25.9%**.

Anheuser-Busch is the most successful beer brewer in the world in terms of financial performance. It reported a turnover of \$ 14,973 million and an Economic Net Profit of \$ 1,704,5 million, an increase of 9.9%. Its ROE was **41.6%**.

Another competitor of Heineken is **SAB – Miller** (a recent stake of 66% in Miller Corporation by South African Breweries). In 2001, it reported a turnover of \$ 4,364 million and Earnings of \$ 350 million, a 6.6% decrease and a ROE of **15.2%**.

Another main competitor of Heineken is **Interbrew**, who followed an aggressive acquisition strategy for the last years. It reported in 2001 a turnover of € 7,303 million and a Net Profit of € 698 million. The ROE was **25.8%**.

Based on the Return On Equity, after Anheuser-Busch is Heineken the best performing company in financial terms. It is closely followed by Interbrew with a difference of 0.1%. To be the best international company in financial terms, Heineken should increase its growth in financial performance.

1.2.3. Company focus

Since Gerard Heineken bought the “Hooiberg” brewery, the Heineken Company has always been a family company. The Heineken family took all major decisions and always had great influence on the organisation in terms of corporate values and its financial performance. The family is the main shareholder with an indirect stake of 25,005% in Heineken NV. Even after his retirement, Freddy Heineken controlled the firm and approved most important decisions. After he passed away, L’Arche came in hands of Mrs. De Carvalho, his only daughter. Her intension is to keep control over the firm, but in a more passive way [NRC Handelsblad, 26-04-2002]. The executive board and the supervisory board take all decisions. The focus of the company gently changed from a family oriented company to a more business driven company at which the financial performance is more important.

1.3. Problem identification

The three observations discussed in the previous section are summarised in this section, as they lead to the problem formulation of this assignment.

1) As Heineken wants to play an active part in the consolidation of the beer market, money is needed. Different ways exist to raise money; one of them is to save on internal investments. Last year Heineken invested € 784 million. Heineken could ask itself whether all investments were necessary and contributed to the profit growth for Heineken. The money could also have been used for acquisitions.

Internal investments and acquisitions should be evaluated carefully and in relation with its current portfolio of assets to make a well-founded decision where to invest.

2) Heineken can increase its financial performance by increasing their return with more than is expected from the owners of the company and holding its asset value constant or by increasing the asset value by investing in projects that earn at least

what is expected from the owners of the company [FD, 11-10-2002]. Both growth strategies deal with investments. By investing in projects that generate a return above the cost of capital of the company, its financial performance will increase in the long term.

3) As Heineken became a more business driven company and therefore focuses more on its financial performance, it should evaluate the financial impact of the investments carefully. Investments are in close relation with the company's financial performance, the Economic Net Profit.

All three observations lead to the following conclusion:

Heineken should take great care in evaluating the performance of its current assets and in evaluating the added-value potential of investments opportunities.

This conclusion can be divided into two parts:

- Managing its current assets and evaluating its portfolio of assets
- Evaluating future investment opportunities

Last year, Heineken adjusted its current investment manual and introduced the classification of investments to nature and function. The objective of the classification is to give insight in whether Heineken invests the right amount, in the right way, for the right reasons and at the right time. This classification is explained in Chapter 2 and can be used to manage the portfolio of assets and for the evaluation of investments. A portfolio analysis evaluates the total performance of the current assets and of the planned investment projects. The input for the portfolio analysis and the evaluation of investments is a cash flow analysis, at which all relevant cash flows need to be taken into account.

As is explained in Chapter 2, the current procedure does not incorporate all relevant cash flows at the cash flow analysis. Each nature has its own characteristics and its own specific cash flows. Heineken should therefore focus first on the guidelines for the cash flow analysis and make sure that the nature specific cash flows are included in the cash flow analysis. When these are identified, the evaluation methods can be analysed and adjusted. After clear guidelines have been set and the evaluation procedure has been adjusted, investments can be evaluated in a transparent way and a portfolio analysis can be made. How a portfolio analysis should be made is out of the scope of this assignment.

This led to the following **problem formulation**

The current investment procedure has not been developed to deal with the characteristics of the different investment types. Therefore the economic evaluation does not represent the most realistic value on which a decision should also be made. This could lead to rejection of interesting investment opportunities and acceptance of for Heineken not interesting (enough) investment opportunities.

1.4. Research objective

The conclusions of Section 1.3 and the problem formulation led to the following objective for this assignment.

Objective

Identify what the characteristics of the different natures are and develop clear guidelines on how these characteristics should be incorporated in the cash flow analysis and the evaluation of investments

The research objective can be divided in the following primary research questions, which are answered in the chapter mentioned in brackets:

- What methodologies Heineken uses today to evaluate an investment proposal and what characteristics are taken into account? (Chapter 2)
- What is described in literature about estimating cash flows? (Chapter 3)
- What evaluation methods exist in literature and what are their characteristics? (Chapter 3)
- What are the characteristics of the different natures regarding the nature specific cash flows? (Chapter 4)

The **deliverable** of this assignment is a transparent procedure to evaluate investments, incorporating the characteristics of the different investment types. A transparent procedure means that clear guidelines are given about how to make an investment proposal. This investment proposal consists of a cash flow analysis and the evaluation methods. Both elements of the proposal should incorporate the characteristics of the investment.

It is not the objective to develop a new manual but to adjust and extend the current manual.

1.5. Research model

The research model presented on the next page, structures the project activities, as it shows the logic steps during the project to fulfil the research objective. The model, based on Verschuren & Doorewaard [Verschuren, 1995], is shown in Figure 1.3 and the mentioned steps are explained afterwards.

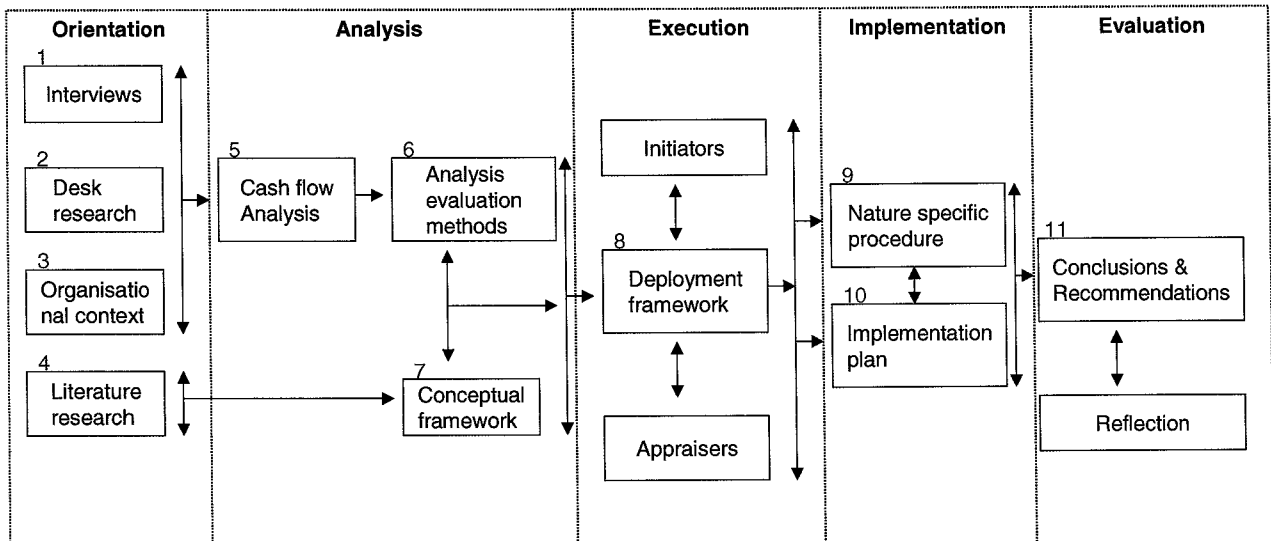


Figure 1.3. Research model based on Verschuren & Doorewaard

Orientation phase

The orientation phase consists of three steps.

Step 1, 2 & 3: The first three steps consist of desk research, interviews and organisational context with the objective to gain more insight in the current investment procedure of Heineken NV and to identify what the main issues are.

Step 4: Parallel to the first three steps, literature research is conducted to gain more knowledge about the different investment types, the cash flows and the evaluation methods.

Analysis phase

The analysis phase consist of three steps.

Step 5: The next step is to analyse what the nature specific cash flows are. The characteristics of the investment types are identified as well as what this means for the cash flows.

Step 6: After the cash flows have been identified, the evaluation methods can be analysed and compared with other available evaluation methods.

Step 7: Via literature research, gained insights will be translated into a conceptual framework that forms the theoretical framework to perform a cash flow analysis and to evaluate investments.

Execution phase

In the execution phase, the generic framework is deployed to the specific natures. Nature specific cash flows are chosen and included in the investment procedure.

Step 8: The framework will be made Heineken specific at which the characteristics of the different natures are taken into account.

Implementation phase

The results will be reviewed during the implementation phase.

Step 9: After the execution phase, the adjusted procedure can be put into practise. Step 9 will describe in what way Heineken should adjust its current procedure.

Step 10: This step describes how to implement the adjusted procedure in practise and how this should be communicated throughout the firm.

Evaluation phase

The evaluation of the research is carried out in this phase.

Step 11: This step in the research model presents the conclusions and recommendations. It summarises what has been changed and what the advantages are of this adjusted procedure. It also discusses future research.

1.6. Structure of the report

The structure of this report is based on the different steps used in the research model. In Figure 1.4 an overview of the structure of this report is presented. Chapter 2 describes the results of the orientation phase and what will be analysed in this assignment. Chapter 3 describes what can be found in literature about different investment types, cash flows and on the evaluation methods. Chapter 4 describes the characteristics of the different natures and analyses what cash flows need to be taken into account at the cash flow analysis. After these have been identified the evaluation methods of Heineken can be evaluated. This is described in Chapter 5.

Based on these results and on literature research, the current procedure can be adjusted. This is described in Chapter 6. Chapter 7 goes into detail how this proposed procedure is implemented at Heineken and how it should be

communicated to the managers. In this chapter, the adjusted procedure is also validated. In the final chapter, conclusions are drawn as well as future research possibilities. This chapter also analyses whether the issues mentioned at the interviews and desk research are solved by the adjusted procedure.

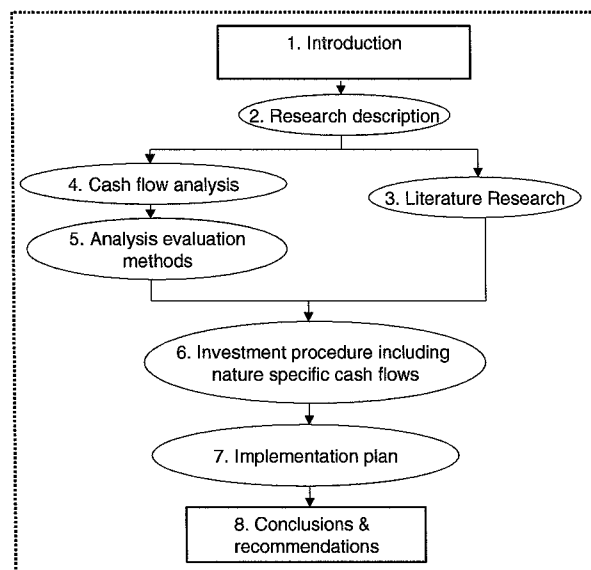


Figure 1.4. Structure of the report

2. Orientation Phase

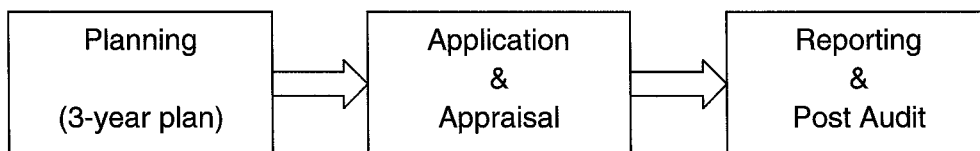
Section 2.1 describes the results of the desk research. Afterwards the results of the interviews held with Heineken managers are described (Section 2.2). The organisational context of Heineken is described in Section 2.3 as this has its impact on the investment procedure. Based on these results and the problem formulation, a decision is made what will be analysed in detail and worked out. This is described in Section 2.4.

2.1. Desk research

Based on the problem formulation as stated in Chapter 1, desk research has been conducted. This research analysed the current investment procedure of Heineken and is based on the Funds Planning and Application manual, discussions with managers and the following investment proposals:

- Restructuring decisions Seville, Spain
- Replacement Brewhouse 's Hertogenbosch, The Netherlands
- New product introduction, Heineken Identity Can
- Extension packaging line, Heineken Keg can
- New business, market entry Madagascar
- New brewery, Vietnam

The investment procedure of Heineken consists of three phases, the Planning procedure, the Application & Appraisal procedure and the Reporting & Post Audit procedure.



The desk research focussed on the Application & Appraisal procedure, as in this phase the investment proposals are submitted and evaluated. To see the relation between the phases, the other phases are described in Appendix B.

The Application & Appraisal procedure

When an Operating Company wants to apply for an investment, the OpCo has to get approval from either the Executive Board or from the OpCo / Cluster board, dependent on the amount requested. For this assignment only investments that need board approval are analysed. The investment proposal is a vehicle for mutual understanding and agreement between Operating Companies and Executive Board. The proposal is sent to Corporate Finance who decides what corporate departments should evaluate the investment. These departments check whether it is in line with the overall Corporate Plan, the corporate strategy or OpCo strategy; financially as well as its contents. The conclusions are sent to the Executive Board that makes the final decision to accept or reject the investment proposal.

Heineken International

The responsible OpCo writes down the investment proposal and is held responsible for the collection of the data. All funds should also be classified to nature and function (see Table 2.1 for the overview of the possible classifications).

The classification of investments has two benefits for Heineken:

1. It provides the executive board insight in how much is invested in every function of the business and in every investment type
2. It makes clear who is responsible for the investment and has to initiate it even if other functions are involved in the proposal

Heineken uses the word funds instead of investments as investments are too much linked to investments in the sense of accounting and that some categories such as sponsorships are regarded as cost in the sense of accounting. This assignment focuses on investments, which are also funds. Both words are used when investments are meant.

Table 2.1. Classification of the funds

		Nature					Total
		New	Extension	Replace	Restruc.	Other	
Function	ICT	x	x	x			x
	Production	x	x	x	x	x	x
	Packaging	x	x	x			x
	Wholesale	x	x	x	x		x
	Marketing	x				x	x
	Commercial	x				x	x
	Loans					x	x
	Other					x	x
	Total	x	x	x	x	x	x

Only the cells with an X do exist, the grey cells are not possible as a category.

The classification to nature, as described in the Heineken manual "Funds Planning and Application procedure", is explained below [Heineken, 2001]. The classification to function is not described as it is only used to make clear what department is responsible for the investment and will not be further used in this assignment.

Classification to the nature of the investment

- **New:** Main driver behind the nature "new" is always new business and new volumes in new market (segments) that do not yet exist.
- **Extension:** The main driver is a capacity shortage due to an increase of the sales volume of existing products in existing markets.
- **Replacement / ongoing business:** The main driver is to keep the existing asset base up to standard.
- **Restructuring / re-allocation:** Funds regarding a significant change in the structure of the business, i.e. closure or regrouping of breweries and warehouses.
- **Other nature:** funds that could not be captured in one of the other nature-categories, fall into this category, like sponsorships, legislation, loans, etc.

A fund should only be classified into one category. The decision what category a fund is, is dependent on the key driver of the application [Heineken, 2001].

Besides the classification of the investment, the following should at least be described in an investment proposal:

1. General description and justification of the proposal
2. An explanation, whether either a proposal is not foreseen in the budget or the expenditures deviate 10% or more from the amount budgeted
3. Plausible alternatives, including delaying the project and the reasons for rejections of the investment
4. Consequences for turnover, volume, price, FTE's, operating costs and fixed costs
5. A list of main factors affecting the project and a list of crucial assumptions on which they are based, and opinions concerning risks
 - a. By showing how sensitive the ratios are to possible changes in each crucial assumption
 - b. By expressing opinions concerning the likelihood of those changes arising
6. Calculations used to determine the Net Present Value (NPV), Internal rate of return (IRR), Payback Period, cost price effects, etc. These are explained in the paragraph below.
7. Specification of assets to be removed, including book value, value according to valuation report, and age in years or working hours.

Depending on the kind of investment (Production, IT or Product Introduction) additional specific information is required, for example the costs and benefits of a new production facility.

As described in bullet 6, the investment proposal should also include financial calculations to show what the impact of the investment in financial terms is. Heineken uses three methods to evaluate the financial impact of the investment proposal, which are now explained in short. In appendix H these are explained in more detail.

The **Net Present Value (NPV)** of an investment is the value obtained by discounting all cash outflows (including the initial capital outlay) and inflows by a discount rate. The discount rate should equal the "Weighted Average Cost of Capital" (WACC), which is a weighted average between "Cost of Debt" and "Cost of Equity". How to calculate the WACC rate is described in Appendix C. The NPV is an absolute figure and, if positive, the investment can be considered as value creating to the business, if negative value diluting.

The **Internal Rate of return (IRR)** is defined as the percentage discount rate that will give the net annual cash flows a cumulative present value of zero; in other words, the discount rate, which will equal the cash inflows with the cash outflows.

The **Payback Period** is the time - taken from the end of the first year in which there is a significant capital outlay – for the cumulative not-discounted cash flows from the project to repay that initial outlay. The preferred payback period differs per country (risk profile) and should be evaluated per situation.

The input for these methods is a cash flow analysis. In this analysis, the relevant cash flows need to be identified and calculated. Heineken has already set rules and guidelines on what cash flows should be taken into account. These rules and guidelines only describe in general terms what cash flows should be taken into account. It does not mention what cash flows are specific for the different investment types.

After the cash flows are identified and clear guidelines are set, the methods are analysed and compared with other available evaluation methods (Chapter 5).

Desk research results

Based on the procedure and the analysed investment proposals, the following can be concluded.

- WACC rate incorporates country specific risk and not project specific risks
The WACC, calculated by Corporate Accounting, only includes country specific risks. It is based on the local risk free rate, the local market risk premium, the local tax rate, the estimated cost of debt in that particular country and the targeted debt / equity ratio. This WACC rate does not take the project specific risks into account. As a consequence, all investment proposals in a given country have the same discount rate.
- Characteristics specific to the natures are not described in manual
Currently, Heineken has one investment procedure to submit and evaluate investment proposals. The procedure does not describe what the characteristics are per nature and what this means for the cash flow analysis. As mentioned in the manual, depending on the nature of the investment additional information should be included, but the manual does not state in what way. The analysed investment proposals also made clear that in the cash flow analysis not all characteristics of the investment type were included.
- Evaluation should be based on strategic and economic aspects
Economical justification is not strongly present in the application form. The application form should focus on the strategic and the economic aspects of the investment. Currently it focuses mainly on the strategic aspects. To be able to focus on the economical justification, the financial analysis should include all relevant cash flows in a transparent way.
- Economic evaluation is based on submitted information
After analysing the investment proposals, it can be conducted that not all information is included in the proposal. Most often, only the Net Present Value is calculated. A sensitivity analysis is often neglected as well as the financial impact of the alternatives. Why not all information is included, is described in Section 2.4. To evaluate investments in a well-founded way, all required information should be included in the right way. Otherwise departments, who appraise the proposal, will have to make their own calculations. This is time consuming and means that these departments have to make assumptions for their own calculations and cannot oversee all financial implications.

- Investments cannot be compared with each other

Because the characteristics of the different investments are not always taken into account and because the guidelines set by Corporate Office only describe what general cash flow should be incorporated, investments cannot be compared with each other.

2.2. Interviews

During the orientation phase, interviews were held with five Heineken managers. Three of them submit investment proposals and two of them evaluate investment proposals in a regular basis. The structure, outline and results of the interviews are described in Appendix D. The main results of the interviews are now discussed.

- Investments are categorised to nature

Investment proposals need to be categorized to the nature of the investment. This provides Heineken insight in the amounts invested in each nature, both on Operating Company level as on Heineken NV level.

- Project specific risks are only described in qualitative terms

Heineken has a thorough method to calculate the country WACC rates. The manual “how to calculate the WACC rates” describes clearly what is taken into account and how this is measured. It gives a clear understanding of the risk rate for that particular country. Disadvantage is that the risks concerning the project are often only described in qualitative terms and are not quantified.

- Outcome economical evaluation is sometimes contradictory to the value perceived by managers

Outcome of the calculated Net Present Value is sometimes contradictory to what people expect. Much of the value is derived from cash flows generated many years after the implementation of the project. Although the NPV calculation is positive, their feeling tells them that it is a risky project and does not represent the actual value.

- Difficulties translating technical aspects into financial terms

Many difficulties are perceived when translating all technical aspects of the investment into financial terms. The current procedure does not provide enough details about what should be taken into account. Furthermore, no feedback is provided to the submitting OpCo about the quality of the investment proposal. As a consequence, OpCo's do not know whether the proposal meets the “Heineken standard”.

- OpCo's are not stimulated to make a thorough economical calculation

In the targets of the OpCo or brewery manager, the investment proposals are not linked to the bonuses. If the forecasted savings are not accomplished, the bonus of the responsible manager will not be affected. Also, no incentive is provided to make the best possible estimation.

2.3. Organisational context

Currently, with a decentralised organisational management model, Heineken can be seen as a collection of separate OpCo's and a corporate office. As is described in Appendix B, the separate OpCo's define their strategy and what funds are required to achieve it (bottom-up approach). These funds are included in the three-year plan and need to be classified to nature and function in the fund plan (for an overview of the fund plan see Appendix E). The Executive Board reviews the three-year plan and the funds mentioned in the plan form the budget for next year.

During year, OpCo's and Clusters can apply for the investments mentioned in the three-year plan (bottom-up approach), and by exception new investment opportunities can be submitted as well.

Because of this bottom-up approach of Heineken, OpCo's initiate and submit investment proposals, at which they estimate what the cash flows are and make the financial calculations.

Corporate staff has set guidelines about what cash flows should be taken into account, but in general the OpCo decides what is included in the proposal. Based on this information, corporate staff departments have to evaluate the investment proposal. Corporate Office should be careful not to set too many guidelines for the cash flow analysis as this is in conflict with the decentralised organisational model.

2.4. Conclusions

Outcome of the desk research and the interviews have been discussed and prioritised as not all issues could be addressed in this assignment. The following issues were chosen and will be analysed in more detail in this assignment.

- Not all relevant information is included in the investment proposal
- Nature specific characteristics are not (always) or in different ways taken into account at the cash flow analysis
- Project risks are only described in qualitative terms

These issues lead to the following:

- Managers evaluating investment proposals have doubt about the calculated economic value. Therefore they make their own calculations, for which assumptions are made (guestimating)
- Because of this, these managers focus more on the strategic aspects of the investment and not on the economic and the strategic aspects
- Investments cannot be compared with each other on a financial basis

Conclusion:

Heineken should set clear guidelines on what cash flows need to be taken into account and how these should be calculated in order to have a transparent evaluation procedure.

Should these suggestions be implemented, it will help the Operating Companies to make a better cash flow analysis and will show what the added-value potential of the investment is. If these issues are solved, the appraisers do not have to make their own calculations anymore and can evaluate the investment proposal on its content, rather than on its content and on the financial analysis.

Three explanations are identified why not all relevant information is included and why the cash flow analysis is sometimes made incorrect.

- a) In practise, OpCo's have difficulties in identifying and translating relevant aspects of investments into cash flows
- b) The current manual does not provide enough guidelines about how the data should be included and in what way the calculations should be made
- c) OpCo's are not provided with clear feedback on the completeness and rightness of their investment proposals

Ad a) Difficulties identifying and translating relevant aspects

OpCo's have to write down their investment proposals. To make the financial calculations, relevant aspects regarding the investment need to be translated into cash flows. This is where OpCo's find difficulties in. The investment proposal is sent to the evaluating corporate departments. The OpCo fills in the application form and receives a go or no-go decision from the executive board. It receives no feedback on whether the information included is sufficient and whether the calculations made are correct. Because no feedback is provided, Heineken has no understanding whether the OpCo's finds difficulties in identifying and translating all relevant aspects into cash flows.

Ad b) Manual does not provide enough guidelines

Because the OpCo's receive no feedback, corporate office also has no idea what the OpCo's think of the current investment manual in terms of completeness, clarity and rightness. If it turns out that the OpCo's lack knowledge, corporate finance could extend the manual by including examples of how to make the calculations and describing in more detail what should be included. These guidelines are analysed in Chapter 4.

Ad c) Feedback on the proposal

To make a **well-founded** evaluation, it is necessary that all information is included in the right way in the investment proposal. Currently, if the financial calculations are not correct, the corporate departments make their own calculations. This is a time consuming business that could be avoided. Another implication is that their evaluation is based on the available information (guestimating) and they cannot oversee all financial implications. To avoid this, OpCo's should be trained and feedback should be provided to the OpCo's.

3. Literature Research

Now that is described what the main issues of Heineken are regarding their investment procedure, an analysis of the available literature can be made. In Appendix F the capital budgeting process described by Shapiro is described [Shapiro, 2000].

This chapter describes what can be found in literature about the evaluation of investments and about cash flow analysis. Section 3.1 describes the classification of investments by Mott [Mott, 1987]. In Section 3.2 the do and don't about estimating cash flows are described. Two investment types are described in more detail in Section 3.3. In Section 3.4 the evaluation methods are described by using the model by Meredith [Meredith, 1986].

3.1. Classification of investments

The procedure how to evaluate investment proposals should be based on the classification of different investment types [Bierman, 1993]. Every investment type has its own characteristics and this determines what information is necessary for a proper evaluation. Many different classifications exist and are dependent on the extension the researcher uses. The classification to the nature of the investment described by Mott will be discussed here [Mott, 1987]. The classification to the nature is chosen for the following reasons:

1. Classification is in close relation with the company's strategy
2. Classification has a close relation to the project uncertainty and the expected return

Nature	Purpose
Legal requirements	To comply with health/safety regulations
Replacement	The renewal of existing plant and equipment
Cost saving	The substitution of new equipment for less cost-effective methods
Expansion	Provision of working capital and/or fixed assets to increase sales volume of existing product lines
Diversification	The introduction of new products requiring both working capital and fixed assets

When compiling the total capital budget for the coming year, the allocation of funds to the nature of the investment can be a useful way, before selecting the individual projects can proceed. If the company's strategy is to grow by expansion or acquisition, then they must allocate sufficient funds for that purpose.

3.2. Estimating the project's cash flows

To evaluate the financial impact of an investment, a cash flow analysis has to be made. This cash flow analysis is to estimate the magnitude, timing and riskiness of the cash flows associated with each project.

The operating cash flows for any project are the incremental revenues, costs, depreciation and working capital that will result from the acceptance of the project compared to doing nothing.

To estimate the project's cash flows the following do and don't should be taken into account [Shapiro, 2000]:

- Apply incremental reasoning

Shareholders are only interested in how much additional money they receive in the future in exchange for the money invested now. Therefore we should only be interested in those cash flows that will change as a direct result of the project being accepted.

- Ignore fictional accrual accounting flows

The basis for accounting statements is historical cost. The capital budgeting decision is forward looking and focuses on cash flows.

- Be careful about transfer prices

Companies pursuing a strategy of related diversification often have divisions that do business with one another. The prices at which goods and services are traded with one another, known as Transfer prices, can significantly distort the profitability of a proposed investment if not selected carefully.

- Ignore sunk costs

The perspective on investment projects should be incremental and forward-looking. Therefore past expenditures should be ignored since they cannot be recouped even if it is decided not to go ahead with the project.

- Do not ignore opportunity costs

Sometimes the company uses resources that are required in the past. To use this resource for the investment means that it cannot be used for another investment or be sold. Therefore these costs should be included.

- Do not forget Working Capital requirements

Many projects require working capital to support expected increased sales. The changes in the working capital level should be included in the time period of the investment.

- Do not forget abandonment cost or terminal values

These values may represent significant inflows or outflows of cash. When estimating the cash flows of the net assets, it is not practical to estimate discrete cash flows to infinity. Thus a simplifying assumption must be made to estimate the value generated after the discrete time horizon. This estimate is called the terminal value.

Two methods exist to determine the residual or terminal value [Glantz, 2000].

- The first looks at terminal value in liquidation and applies essentially to assets with a finite life. This salvage value includes:
 - The after tax proceeds from the sale of the assets
 - The recovery, if any, of the working capital
- The second category looks at terminal value from a “going on concern” point of view and includes perpetuities and multiples.

The formula to calculate the on-going residual value (RV) is

$$\text{Residual Value}_{(n)} = \frac{\text{Cash flow}_{n+1}}{\text{WACC}}$$

n = end forecast period

Once cash flow estimates have been made, the firm can evaluate the project in financial terms and assess whether the decision to go forward is consistent with the strategic goal of maximizing shareholder value [Shapiro, 2000].

3.3. Nature specific cash flows

Two frequently encountered investments are described in this section, the replacement problem and new product introductions. This description will focus on what cash flows are specific for these kinds of investments.

Replacement problem

These investment issues represent a situation in which a company wants to replace an existing piece of equipment with a new piece of equipment [Shapiro, 2000]. The motivation of these projects is typically either cost reduction or quality improvement (or both).

The first order of business is to calculate the project's initial investment and consists of three components:

- 1) The cost of acquiring and placing the necessary fixed assets into service
- 2) The net proceeds from the sale of existing assets
- 3) Any tax consequences that may arise from the sale of the existing asset at a book gain or loss.

The objective for this type of investment is not if the equipment needs to be replaced but when. Therefore one should focus on comparing the investment decision over the years. If it is investigated that the equipment can last for a maximum of 5 years, one should evaluate the decision to replace the investment within these 5 years and focus on the savings made in these years compared to postponing the investment for 5 years. The revenues of these investment decisions can be neglected as nothing changes at the sales side.

Product introduction

Estimating the cash flows for this type of investment decisions are subject to high degrees of uncertainty [Shapiro, 2000]. This depends on whether the “new product” is a simple extension of an existing product or a true product innovation. The lifetime of the new project determines the forecast period of the investment decision. After

this forecast period, the terminal value can be calculated by the after tax sales of the equipment and the recovery of the working capital.

To calculate the net revenues, the company should estimate the cannibalisation effect. Cannibalisation is the phenomena that the new product takes away sales from one or more of the firm's existing products. Because of this effect one should not calculate the revenues from the volume of the new product but on the additional revenues from the additional volume for the company.

Assessing the effects of cannibalisation is an exercise in incremental reasoning. The trick is to properly gauge what would happen to sales in the absence of the new product. A critical error made by some companies is to ignore the competitor's behaviour and assume that the base case (the company's cash flows without the investment) is the status quo. The key question that managers should ask is "What will happen if we don't make this investment or introduce this new product?"

If sales are expected to go down over the years, this is the base case. If the sales remain constant over the years due to the new product, the net effect is that additional profit is made for the company. This net effect should be compared with the investment required.

3.4. Evaluation of investment proposals

Now that the cash flows have been estimated the investment can be evaluated. A capital investment project require long-term commitments of a firm's capital, labour and reputation – commitments that cannot easily be altered in the face of unexpected conditions. Because of this, project evaluation should be done with great care, using the best available technique, and should also include an adequate analysis of project risks and opportunities [Thorne, 1995]. After an extensive research about the available evaluation methods, the evaluation approach described by Meredith is chosen. This approach is chosen, as it takes not only the economic aspects of an investment into account but dependent on the investment type also its analytic and strategic justification. For Heineken, investment proposals should be evaluated on its strategic and economic aspects. The model of Meredith deals with both approaches. This model will now be described.

Meredith and Suresh

Meredith and Suresh have developed a justification model to evaluate investment proposals of Advanced Manufacturing Technology (AMT) systems.

A major problem in the adoption of AMT systems was that many worthwhile projects have been turned down because the qualitative benefits could not be included in the justification procedure while the direct cost savings were insufficient to meet the financial hurdles set by the firm [Meredith, 1986].

The new manufacturing technologies can be considered to span a continuum in terms of level of integration from stand-alone equipment to full computer-integrated manufacturing. This level determines those situations where economic justification policies are suitable and those where other justification procedures are more appropriate (Figure 3.1) [Meredith, 1986].

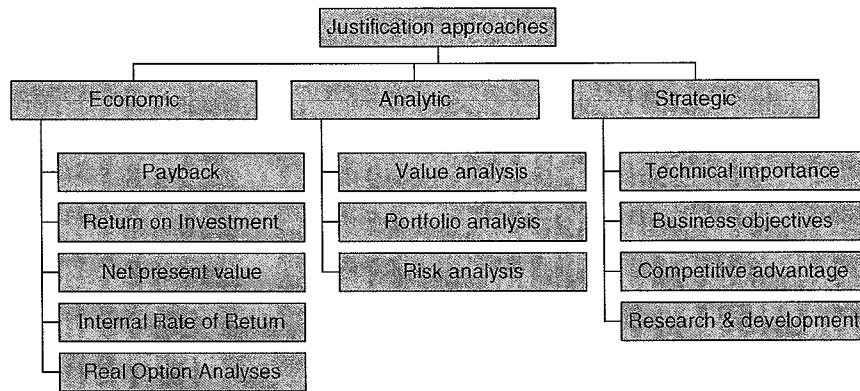


Figure 3.1 Evaluation methods classified by Meredith and Suresh

Each of these three justification approaches spans a number of methods. The methods described by Meredith are extended by other method that can be useful for Heineken. The approaches will now briefly be discussed.

3.4.1. Economic justification approach

There exist a number of methods that firms use for the economic justification of an investment. The essence is to measure the worthwhileness of the proposal to spend money, by comparing the benefits with the cost.

In Appendix H the following methodologies will be described: 1) Return on investment, 2) Payback period, 3) Discounted Cash flow analysis methods, 4) Real Option Analysis and 5) the Binomial Model. Also will be described what the advantages and the disadvantages of each method are.

3.4.2. Analytic justification approach

The analytic techniques are again largely quantitative but more complex than the economic approaches. Also, they tend to capture more information and frequently consider uncertainty and multiple measures and effects. When synergy, flexibility, risk and non-economic benefits are expected, the analytical approaches are used. Four major approaches are described for this category, value analysis, portfolio analysis, forecast analysis and risk analysis. For a description of the analytic approaches, see Appendix I.

3.4.3. Strategic justification approach

The strategic approaches tend to be less technical than the two previous categories, though they are frequently used in combination with them. Four main approaches are commonly used at this level and are described in Appendix J. These are the technical importance of the project, the relation with the business objectives, what the competitive advantage is and whether it is a Research and Development project. When higher-level (more strategic) approaches are employed the lower level methods should also be used to reveal the full impacts of the decision [Meredith, 1986].

The advantages and disadvantages of the three approaches according to Karsak will be presented in the table below [Karsak; 2001].

Table 3.1. Advantages and disadvantages of each approach

	Advantages	Disadvantages
Economic	<ul style="list-style-type: none"> * Ease in data collection * Intuitive appeal 	<ul style="list-style-type: none"> * Do not take into account strategic and non-economic benefits * Consider a single objective of cash-flows, and ignore other benefits such as quality and flexibility
Strategic	<ul style="list-style-type: none"> * Require less technical data * Use the general objectives of the firm 	<ul style="list-style-type: none"> * Necessity to use with economic or analytic techniques since they only consider long-term intangible benefits
Analytic	<ul style="list-style-type: none"> * Uncertainty about the future and the multi-objectivity can be incorporated * Subjective criteria can be introduced in the modelling phase 	<ul style="list-style-type: none"> * Require more data * Usually more complex than the economic analysis

4. Cash Flow Analysis

To evaluate investments in a well-founded way Heineken should first make sure that all relevant input data is calculated in the right way. Therefore this chapter analyses the cash flows regarding investments in detail. To identify what the nature specific cash flows are, the characteristics of the different investment types need to be analysed. These characteristics are described in Section 4.1. As mentioned in Chapter 2, Heineken already set rules about what general cash flows need to be taken into account. These rules are analysed in Section 4.2. In the Funds Planning & Application manual an example is included to show how to calculate the NPV, IRR and Payback period. This example is analysed in Section 4.3. In Section 4.4, cash flows are analysed that are not described in the manual but are relevant for certain investment types. In section 4.5, the main conclusions of this chapter are summarised.

4.1. Characteristics of the investment types

In Chapter 2 is described what is meant with each nature. In this section the different nature are analysed in more detail and the characteristics are described. The analysis is based on discussions with Heineken managers and on the investment proposals mentioned in Chapter 2. The nature “New” is divided into New Business and New Product Introduction as these have different characteristics.

The analysis is divided in the investment driver and the cash flows identified by Shapiro to determine the operational cash flow, which are the revenues, costs, depreciation and working capital. As the depreciation depends on the capital expenditure and its lifetime, this is also included in the analysis. Other important characteristics of the investment types are described as well.

4.1.1. New Business

The investment driver of investment decisions that are classified as New Business is to increase the revenues of Heineken. Therefore a new market is entered (Madagascar) or a new brewery is built in a specific country (Vietnam). As all cash flows need to be determined, this investment category has a high uncertainty.

Revenues

To enter a new market, a forecast is needed on what the estimated revenues for Heineken are. Therefore the volume needs to be forecasted as well as the selling prices. These forecasts should be based on the beer volume of that country, the growth potential in that market, what the selling price should be of the products, what customers Heineken wants to serve and in what way.

Cost

As it concerns a new market entry with a new brewery, all cost needs to be determined. This should be based on local market conditions (e.g. average salary) and on a benchmark with other Heineken breweries. Also needs to be determined what the selling cost are and how much is available for marketing.

Investment & lifetime

To be able to sell and produce beer, a brewery needs to be built as well as office buildings and office equipment. These capital expenditures and their lifetime need to be determined. As these assets have different lifetimes and the decision to enter a market is a long-term decision, on-going investments need to be estimated. What on-going investments are is described later on in this chapter.

The capital expenditures and their lifetime determine the depreciation value.

Other characteristics

Because Heineken is not present in that country it is important to analyse the characteristics of that country. Is it a political stable country, where should the brewery be build, etc.

4.1.2. New Product Introduction

The investment driver of a new product introduction is to increase revenues for Heineken over the years and / or to improve the brand health of the product.

Revenues

For this new product, the volume needs to be estimated. This should be based on the customers they want to reach, in what markets it will be sold, the growth potential of the new product and the cannibalisation effect. Cannibalisation is the sales that take the new product away from existing sales [Shapiro, 2000]. Therefore the revenues will only increase as the new product does not only takes away sales from Heineken products but also reaches new customers or customers from competitors. Besides a possible price increase of the new product, the revenues will increase because of the additional volume.

Cost

For the new product, the development cost need to be estimated. After the product has been developed, one should investigate how it can be produced and whether the current equipment is suitable or investments are required. These determine the production cost of the new product.

Investment & lifetime

As it concerns a new product, the capital expenditures need to be estimated. These consist of research & development cost and capital expenditures to produce the new product. As Heineken is in a highly competitive market, the benefits of the new product introduction will not last forever, even though the production equipment may have a longer lifetime.

Other characteristics

If the new product is a success in a particular country, the new product may also be introduced at other countries. Therefore the investment decision should not only evaluate the decision to introduce the new product in one country but also the rollout potential in other countries.

4.1.3. Extension

The investment driver of extension decisions is to meet demand, based on growth potential for Heineken. The current capacity of the production equipment is not sufficient to meet demand in the long term.

Revenues

To evaluate the extension decision, the revenues need to be forecasted. The volume that cannot be met because of capacity shortage, should justify the extension.

Cost

Due to this capacity shortage, new production equipment needs to be bought. This new equipment will have an impact on the production cost, which needs to be determined. These consist of variable material cost, personnel, energy & water, repair & maintenance and other costs. The change in production cost as well as the production cost to produce the additional volume needs to be estimated.

Investments

The capital expenditures and the lifetime of the production equipment need to be determined.

Other characteristics

At extension decisions, Heineken should not only investigate what the required capacity is at a certain brewery, but should also investigate what the other alternatives are. For example allocate the additional volume to another brewery with sufficient capacity and compare these alternatives with each other.

4.1.4. Replacement

The investment driver of replacement decisions is to keep the asset base up to standard.

Revenues

As nothing changes at the market side, these cash flows do not have to be taken into account.

Cost

Replacement of production equipment will also lead to a change in the production cost. These costs consist of personnel, repair & maintenance, energy & water, depreciation cost and other. Only the cost that lead to a change in the cash flows should be incorporated in the cash flow analysis.

Investments

What are the required capital expenditures regarding the replacement? These need to be estimated as well as the lifetime of the equipment.

Other characteristics

Question is not if the equipment needs to be replaced but when it needs to be replaced. For how long can the current equipment still be used and what are the savings of the new production equipment in relation to the current equipment. Therefore, the alternatives should be compared with each other.

4.1.5. Restructuring

The investment driver of restructuring decisions is to decrease the asset base level. The current capacity utilisation of the existing breweries needs to be compared with other alternatives, for example the closure of one of the breweries.

Revenues

At the revenue side nothing will change. Therefore these can be neglected.

Cost

Because of the closure of a brewery, the distribution cost may increase to serve the same market. These additional cost needs to be determined.

As one brewery may be closed, the other breweries will have an increase in their production volume. Therefore, the change in production cost needs to be determined to know what the savings are in relation to the current situation.

Investments & lifetime

What capital expenditures are required to produce the same volume with fewer breweries? What are the costs of closing an existing brewery? These capital expenditures need to be determined. Also needs to be estimated what the on-going investments are, as is invested in many assets. The restructuring decision is a long-term decision.

Other characteristics

At restructuring decisions, political aspects should also be taken into account. What will the reaction of the unions be, of the government, etc? These aspects have a large impact on the final decision to go ahead or not.

4.1.6. Other

All investment proposals that cannot be grouped to one of the other natures should be grouped to this category. As these are very diverse decisions, general characteristics cannot be determined. Therefore this category is out of the scope of this assignment.

Now that the characteristics of the different natures are identified, these characteristics need to be translated into relevant cash flows. But before this is done, is analysed what guidelines about the cash flows are already described in the manual and what characteristics are not taken into account in the manual.

4.2. Guidelines on cash flows

This section starts with the description of the Heineken guidelines, as mentioned in the manual. Afterwards each guideline is analysed.

4.2.1. Description of the guidelines

1. Cash flows should take the tax effect into account
2. At the end of the calculation period the residual value of the initial investment should be treated as a cash inflow.
3. Change in Working Capital Required has an impact on cash flows.
4. Depreciation is only an accounting entry and not cash, and should therefore not be included in the above-mentioned calculations, apart from the tax impact.
5. Use local currencies and local WACC's for cash flow calculations
6. The Cash Flows should be on a nominal basis, i.e. including inflation.
Use the same inflation rate in the cash flows as has been used in the WACC. Inflation rates which are used for estimating WACC's are provided to OpCo's by Corporate Control & Accounting.
7. Because additional country marks-ups are no longer included in the WACC rates, use different cash flow scenarios in case you perceive country risks. Risks should be included in the cash flow.

4.2.2. Analysis of the guidelines

Each guideline is analysed in this section.

1. Tax effect on cash flows

At the financial analysis the tax effect should be included as Heineken is only interested in those cash flows that lead to additional cash for the company, not the cash flows that go to the government.

2. Residual value of the initial investment

As mentioned in Chapter 3, the residual value can be estimated from a going-on point of view or as a finite project. At the rules nothing is said about how the residual value should be calculated. Some projects may have a finite life and should be calculated like a finite project, other projects continue after the forecast period and should therefore be calculated as on-going projects. How to calculate the residual value will be explained in Section 5.3.

3. Change in working capital

If the investment project leads to additional volume, this will also require additional working capital to meet demand on time and will also lead to additional debt and credit levels. The rules do not mention how the additional working capital should be calculated. For some investment projects the total working capital level needs to be estimated, while at other projects only the incremental working capital level should be calculated. Heineken should make clear in what way working capital needs to be calculated.

4. Tax effect on depreciation

The implementation of the investment will lead to a capital expenditure, for example when new production equipment is bought. This investment is tax deductible and can be considered as cash inflows. The fiscal lifetime of the equipment decides how long the tax benefit can be taken into account. Heineken should make clear that the tax effect on depreciation should be calculated by using the fiscal life time and not the economic life time as is used in the analysed investment proposals.

5. Local currencies and local WACC's

Cash flows should be estimated using local currencies. Country risk is included in the WACC rate and therefore the cash flows should also be estimated using local currencies, as in the WACC rate currency stability is already included.

6. Cash flows should be on a nominal basis

The cash flows should be calculated on a nominal basis, taking inflation into account. As is stated above Corporate Accounting should provide the inflation and the WACC rate. In Appendix C a WACC rate overview is shown, the inflation rate is not explicitly mentioned. Inflation is one of the parameters that determine the risk free rate.

Heineken should be careful about the inflation rate used in an investment proposal and the implicitly used inflation rate included in the WACC. This could lead to different inflation rates used at the cash flow analysis, which has an impact on the financial analysis. When the inflation rate used for the cash flows is higher than the inflation rate for the WACC rate, the NPV value is overstated. When lower, the value is understated as the cash flows are discounted using a higher percentage than

used to calculate the nominal cash flows. Currently it not obvious that the percentages used are always the same.

7. Additional country risks

Because the local WACC rate is based on the risk free rate, the local beta and a local market risk premium, some general local risks are already included. If the Operating Company perceives additional country risk, this should be included in the cash flows. The notion is that the WACC rate per country should be the same for all investment projects in that country to make comparison possible. The project specific risks should be included in the cash flows and can be evaluated using another method, as will be explained in Chapter 5.

4.3. The example used in the manual

Besides the guidelines an example is included to show how to calculate the NPV, IRR and the Payback period. This example is exactly copied from the manual. At this example some implicit assumptions are made, which are explained after the description.

4.3.1. Description of the example

Investment in a modern, efficient machine, lifetime 10 years.

Capital expenditure: € 1000.

Due to this investment:

- Energy costs are higher: € 100/year
- Labour costs are much lower: € 300/year
- Material costs are reduced with: € 50/year in relation to the existing situation.

After 10 years the residual or terminal value is: € 50 (book value 0, value at arms length 50). The local nominal WACC for the country is 11%; Local tax rate is 40%; Local inflation is 5%.

What are the financial benefits of this investment in terms of IRR; NPV; Payback period?

Year	0	1	2	3 - 9	10
Energy costs		-100	-105		-155
Labour costs		300	315		465
Material costs		50	53		78
Residual value					50
Savings		250	263		438
Tax on savings 40%		100	105		175
Savings after tax		150	158		263
Tax savings on depreciation 40%		40	40		40
Total savings after tax		190	198		303
Investments	-1000				
Total cash flow	-1000	190	198		303
Discount factor 11%	1.0	0.9	0.8		0.4
Discounted cash flows	-1000	171	160		107

NPV	= 312 EURO
IRR	= 17.5%
Payback Period	= 4.9 years

The method can alternatively be applied for comparing two situations, where a more expensive project with higher financial benefits, is the alternative of less expensive project with lower financial benefits.

4.3.2. Analysis of the example

At this example some implicit assumptions are made, which are described below.

Forecast period

The economic lifetime of the investment is 10 years. The forecast period, the time at which the cash flows should be calculated, is also 10 years. Implicitly the rule of Heineken is that the forecast period should be equal to the economic life of the investment. This rule is also used in many books about capital budgeting [Shapiro, 2000; Duffhues, 1994]. If this is the rule, it should be clearly mentioned in the manual. Currently, no clear understanding about how to set the forecast period. As will be further analysed in Section 5.2, the consequences can be substantial.

Residual value

As is stated above the Heineken rules do not tell how to calculate the residual value. In this example the residual value is 50. No explanation is given how this value is calculated and what the argumentation is. The OpCo's have no guideline about how to calculate the residual value and when this should be included. As this is in close relation with the forecast period, this is also analysed into more depth in Section 5.2.

Savings

In the example the savings of the first year are multiplied by the inflation rate to receive the nominal savings per year. The implicit assumption is that the savings are the same every year. The savings are made up of savings on Energy, Labour and Material costs. As the production equipment becomes older and older, it is overstated that the savings will still be same as in year one, especially for material and energy savings. If this is the implicit assumption, which is also almost always used in the investment proposals, it should be stated in the manual and should explain why this is used. For example for the simplicity of the calculations or that only cash flows that are certain may be included (conservative forecasting).

4.4. Other cash flows

As is identified at Section 4.1, different investment types lead to different cash flows. These cash flows should be included in the cash flow analysis and should be explained in the manual. Corporate office can never set rules about all cash flows required for the cash flow analysis. This would also be in conflict with the decentralized organisational model Heineken applies.

Still there are cash flows that are specific for certain investment types. These should be described in the manual as these investments are proposed regularly and hold for all investment proposals within the same nature. Describing these cash flows in the

manual will also give the OpCo more guideline in the differences between different kind of investments and what cash flows are relevant per investment type. The following cash flows should be taken into account and are described per section.

4.4.1. On-going investments

Some investments projects require investments in more than one asset / production equipment. These production equipments may have different economic life times. For Heineken it is difficult to measure when the separate assets need to be replaced to keep the asset base up to standard. In that case on-going investments can be included in the cash flow analysis. The natures New business (M&A) and Restructuring are typical projects with investments in more than one asset. For these natures on-going investments should be included.

The objective of including on-going investments is to keep the asset base up to standard. In literature these capital expenditures are also described [Ross, 1999]. To keep the asset base up to standard, Heineken needs to decide what the standard asset base level should be. This determines in what year the on-going investments should be included for the first time.

To keep the asset base constant, the on-going investments should be equal to the depreciation value. If the on-going investments are more than the depreciation value the asset base level increases, if lower the asset base level decreases as is shown in Figure 4.1. In this figure can also be seen that the chosen asset base level is 90% of its initial value. Therefore the on-going investments are included in year 2 for the first time.

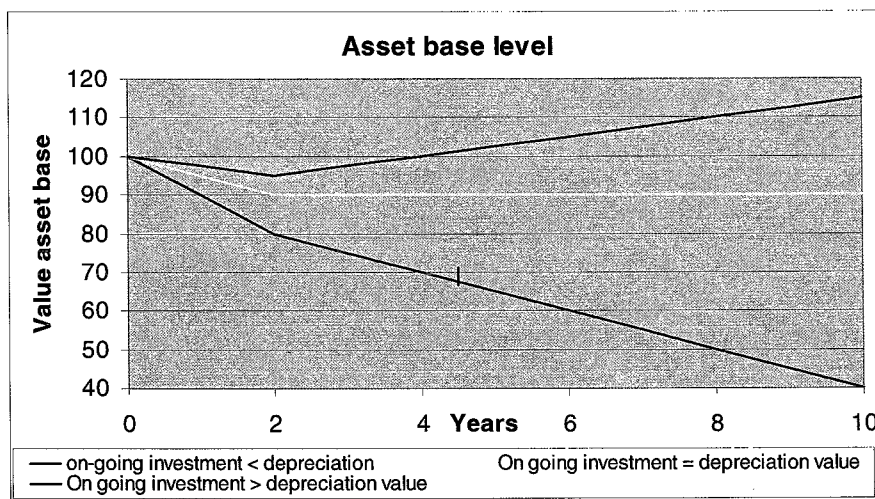


Figure 4.1. On-going investment versus depreciation

4.4.2. Additional volume

Some investments lead to the allocation of additional volume to a certain brewery. The natures "New Product Introduction" and "Extension" are investment projects that lead to additional volume. For these investments, the proposal should focus on incremental reasoning as explained in Chapter 3.

Nothing is the procedure is said what production cost should be included in the cash flow analysis.

Heineken International

In Figure 4.2 a breakdown of the production cost is shown.

	Euro / HL
Raw materials	5,15
Packaging materials	59,00
Other variable materials	1,00
Total Variable cost	65,15
DCS - internal transport	1,35
Brewing	3,84
Packaging	8,88
ABC - Direct Fixed cost	14,07
Other Maintenance	0,15
Other Utilities	0,63
Production general	3,41
Production national	1,46
Staff dept.	0,97
Uncovered depreciation	0,15
ABC - Indirect fixed cost	6,77
ABC production cost	85,99

The variable costs are clearly variable. For the additional volume, the total variable cost will increase by the variable cost per hectolitre * additional volume.

The indirect fixed costs are also obvious. These cost are real overhead cost, like the salary of the brewery manager, the energy cost for the office the manager works in, etc. These costs will not increase when additional volume is allocated to a certain brewery. At least not if the volume is proportionally small compared to the total volume brewed at that brewery.

The only costs that are more difficult to estimate are the direct fixed cost. These will be explained into more detail.

Figure 4.2. Cost breakdown per HL

The Direct fixed cost consist of the following cost components:

- Personnel
- Depreciation
- Repair and maintenance
- Energy and water
- Other direct fixed cost

Which cost components of the direct fixed cost are clearly fixed and which ones are "semi-variable". The proposal is to consider those cost components as semi-variable if they have a causal relation with volume. After discussions with brewery managers and with experts on Activity Based Costing, the following is decided (Figure 4.3).

DCS - internal transport	1,36	DCS - internal transport	0,67
Personnel	0,65	Personnel	0,65
Depreciation	0,42	Depreciation	0
Repair & maintenance	0,10	Repair & maintenance	0
Energy & Water	0,02	Energy & Water	0,02
Other	0,17	Other	0
Brewing	3,84	Brewing	0,90
Personnel	1,02	Personnel	0
Depreciation	1,39	Depreciation	0
Repair & maintenance	0,38	Repair & maintenance	0
Energy & Water	0,90	Energy & Water	0,90
Other	0,15	Other	0
Packaging	8,88	Packaging	6,04
Personnel	6,03	Personnel	6,03
Depreciation	1,86	Depreciation	0
Repair & maintenance	0,72	Repair & maintenance	0
Energy & Water	0,01	Energy & Water	0,01
Other	0,26	Other	0
ABC - Direct Fixed cost	14,08	ABC Semi-variable cost	7,61

Figure 4.3. From cost to cash

In the current procedure nothing is said about which production cost lead to additional cash flows when additional volume is allocated to a brewery. Some proposals use the contribution margin per HL in the cash flow analysis. The contribution margin is the selling price minus all variable cost. This overstates the Net Present Value, because the semi-variable costs are neglected using the contribution margin. In other investment proposals the profit per HL is used to estimate the additional cash flows. This understates the Net Present Value as it considers the indirect fixed cost as variable.

To evaluate investment proposals in a transparent way, Heineken should include in the manual what cost lead to additional cash flows when additional volume is allocated to a brewery.

4.4.3. Cannibalisation

In the appendix of the current manual for product introductions is mentioned that cannibalisation should be included. Analysing mentioned investment proposals has learned that not always cannibalisation is taken into account. (e.g. Heineken Identity Can). Corporate Accounting should evaluate these proposals carefully and ask for adjustment of the proposal when cannibalisation is not included. The cannibalisation effect has a substantial effect on the additional cash flows for Heineken, which is shown in the following example.

To show the impact of the cannibalisation, the sales price and production cost are the same for both products.

The forecasted volume of the new product is 35,000 hectolitre. To be able to produce the new product, Heineken has to make an investment of € 5,000,000.

The effect of cannibalisation is shown in Figure 4.4. The red line represents a cannibalisation effect of 10% and the yellow line of 50%. For the forecasted volume of 35,000 HL, the total volume of Heineken will only grow with 31,500 HL if the cannibalisation effect is 10% and will only grow with 15,250 HL in case the effect is 50%.

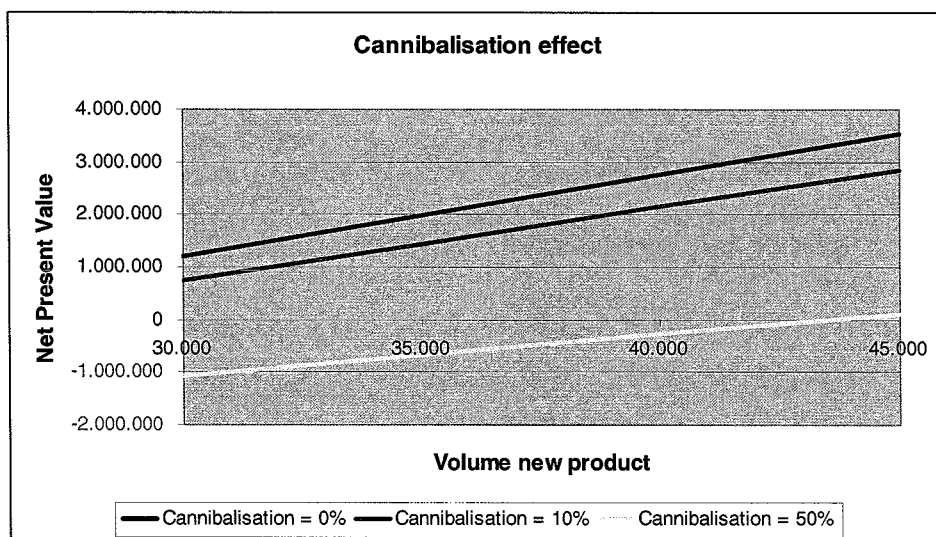


Figure 4.4. Cannibalisation effect

As can be seen in the figure, it is very important for Heineken to measure the cannibalisation effect as the cannibalisation % determines the incremental growth for Heineken and therefore its value.

4.5. Conclusion

Now that the characteristics of the different natures are described and translated into nature specific cash flows and general cash flows, an overview exists what cash flows should be taken into account at the different investment decisions. These cash flows need to be included in a transparent way in the current manual. This is described in Chapter 6.

After the analysis of the current procedure, the following can be concluded:

- No clear description of the forecast period. This is analysed in more detail in Chapter 5.
- No guidelines on how the residual value should be calculated. This is also analysed in Chapter 5, as it is in close relation with the forecast period.
- Characteristics of the different investment types are not clearly described in the manual.
- No clear guidelines on how these characteristics should be incorporated in the cash flow analysis.

The implications of these issues are:

- Investments cannot be compared with each other on a financial basis as not all relevant cash flows are included in the cash flow analysis
- Value calculated based on the cash flow analysis do not represent the best estimate value as not all relevant cash flows are included

After the analysis of the current guidelines, other guidelines were identified to make sure that the nature specific cash flows are taken into account. As these cash flows are taken into account in the correct way, the cash flow analysis can be made and used to evaluate the investment.

These evaluation methods are analysed in Chapter 5.

5. Evaluation Methods

This chapter analyses the evaluation methods Heineken uses in more detail. In Section 5.1 these methods are analysed and compared with other methods that exist in literature. Finally three methods are chosen to evaluate investments. To use these methods Heineken should set clear guidelines on what the forecast period should be and how the residual value should be calculated. What the impact is of the length of the forecast period and the residual value is shown in Section 5.2. The rules and guidelines regarding the forecast period and the residual value are explained in Section 5.3. Section 5.4 analyses the analytic evaluation methods described in Chapter 3. Section 5.5 analyses the strategic justification approaches. In Section 5.6 the main results of this chapter are summarised.

5.1. Analysis economic evaluation methods

In Chapter 2, the three methods that Heineken uses are described. Now that the cash flows are analysed, these methods can be reviewed. In Appendix H other methods that exist in literature are described. This section analyses what methods are suitable for Heineken to be used.

Because Heineken should first make sure that the cash flow analysis is performed in a transparent way and that all relevant cash flows are included, the evaluation methods should not deviate too much from the current methods. After the procedure is used correctly, Heineken can think of using more sophisticated methods.

Net Present Value

The NPV is an effective method to show the value creation potential of the investment. It takes the magnitude, the timing and the country risk into account. The drawback of this method is that it is a static approach. It disregards opportunities to alter the game plan if conditions change during the project and consequently undervalues projects that are explicitly elastic [Glantz, 2000]. Another drawback is that the project risks are not taken into account at the economic evaluation. As is explained in Section 5.4, other methods exist to evaluate the project risks.

For Heineken the NPV is a suitable method as long as the rules and guidelines are followed and include the nature specific cash flows.

Internal Rate of Return

The IRR measures the rate at which the present value of the expected future cash flows equals the present value of the initial investment. The advantage is that it often gives the correct accept–reject decision if used carefully but it often gives incorrect rankings for mutually exclusive projects. Particularly if they differ in scale of initial investment or size of cash flows and differ in economic life [Bertoneche, 2001].

For Heineken, it is not a problem to compare mutually exclusive methods as the capital expenditure and the economic life are often almost the same for the alternatives. Heineken should be careful using this method as a selection method between independent investment proposals initiated in different countries as the method neglects the country risks. Choosing the investment proposal with the

largest IRR is not possible. What Heineken could do is to calculate how much the IRR is above the local WACC rate and compare these percentages.

Payback Period

The Payback Period measures the number of years it is expected to take to recover the cost of the initial investment. The advantage of the method is its simplicity. The method is easy to understand and is easy to calculate. No assumptions are required about the appropriate cost of capital for a particular project. The disadvantage is that it ignores the time value of money, ignores the cash flows beyond the payback period and lacks a benchmark for decision-making [Bertoneche, 2001].

Because the time value of money is important for Heineken and this is neglected by the payback, Heineken should not use this method. Another method exists in literature that takes the timing of the cash flows into account: the discounted payback.

Discounted Payback

This method also measures the number of years it is expected to take to recover the costs of the initial investment, but takes the timing of the cash flows into account. As the magnitude of the investments for Heineken are large, neglecting the time value of money is a serious shortcoming. Therefore Heineken should use discounted payback instead of payback.

Other economic evaluation methods

In Appendix K, other economic methods are described that can be used to evaluate investment proposals. For each method is also described what the major drawback(s) is of the method and why Heineken should not use it right now.

5.2. Impact forecast period and residual value

Following the current procedure can lead to different values of the Net Present Value, just by calculating the cash flows in a different way or incomplete. The following example shows the impact on the value by making use of different calculation methods to estimate the cash flows. The input data is summed up in Figure 5.1.

● Investment	14,000,000
● Savings	1,730,000
● Economic life	20 years
● Tax rate	35%
● WACC (ex. Inflation)	5.88%

Figure 5.1. Input data

The investment is a replacement of a Brewhouse in a certain brewery. Compared to the current brewery, the savings are € 1,730,000 per year. Its economic life is 20 years. The tax effect will be taken into account. For simplicity reasons the cash flows are excluding inflation as same as the WACC.

Figure 5.2 shows the Net Present Value making use of different methods. In the figure the following cash flows and rules are varied:

- The length of the forecast period
- How to calculate the residual value
- Adjustments of the forecasted savings

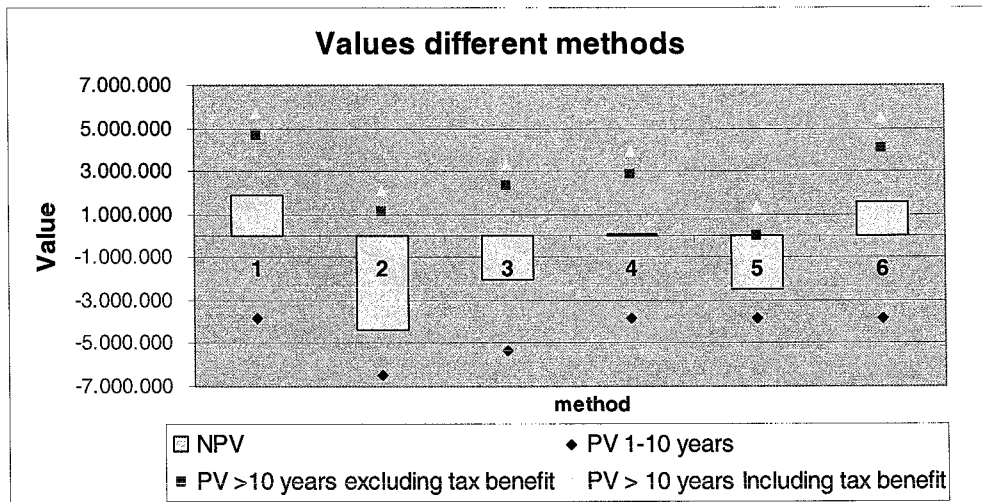


Figure 5.2. The Net Present Value using different methods

- Method 1: Savings are constant for the economic life; forecast period is 20 years, residual value excluded.
- Method 2: Savings drops with 10% each year from year 1, forecast period is 20 years, residual value excluded
- Method 3: Savings drop with 5% each year from year 1, forecast period is 20 years, residual value excluded
- Method 4: Savings drop with 10% each year from year 10 onwards, forecast period is 20 years, residual value excluded
- Method 5: Savings are constant within forecast period, forecast period is 10 years, and residual value is remaining tax benefit
- Method 6: Savings are constant within forecast period, forecast period is 10 years, Residual Value is (Free Cash Flow – on-going investment) / WACC

Whether the method used may practically be incorrect is not relevant now. Following the current procedure, all methods can be used to calculate the NPV. As can be seen in the figure, the NPV varies from € 1,800,000 to minus € 4,300,000. Question remains, what value represents the actual value of the investment most accurate and complete? This question is answered in Section 5.3.

If the Net Present Value is used for choosing between projects using the current procedure, not the most value creating projects in real life may be chosen but the most value creating projects on paper.

Another issue is that corporate staff has to evaluate the investment proposal. The acceptance versus rejection decision is also based on this figure or at least they are influenced by the presented value.

Therefore Heineken should set clear guidelines about

- What the forecast period should be
- In what way the residual value should be taken into account

Then the investments will be evaluated in a transparent way and can they be compared with each other.

5.3. Forecast Period and Residual Value

To calculate the value of the three evaluation methods, a cash flow analysis has to be made. The cash flows have been identified in Chapter 4. For how long the cash flows need to be forecasted is not yet discussed. Also does Heineken need to set guidelines on how the residual value should be calculated. These are discussed in this section.

As is mentioned in Chapter 4, the implicit assumption is that the forecast period should be as long as the economic life of the investment. After this period, a residual value is calculated. After analysing the forecast periods of the investment proposals mentioned in Chapter 2, it can be concluded that the forecast period used at the investment proposals are not always the same as the economic life of the investment. This is shown in Figure 5.3.

	Forecast period	Economic life
• New brew house The Netherlands	20 years	20 years
• New 25 cl. bottle France	12 years	10 years
• Heineken Identity Can Greece	11 years	20 years
• New brewery Madagascar	13 years	20 years
• LAS Rwanda	11 years	15 years
• LAS Spain	15 years	20 years

Figure 5.3. Overview forecast periods and economic lives

Shapiro mentions that estimating the cash flows associated with the projects is often the most difficult part to do [Shapiro, 2000]. In *Modern Corporate Finance* by Shapiro [Shapiro, 2000] and also in *“Ondernemingsfinanciering en vermogensmarkten”* by Duffheus [Duffheus, 1994] examples are included to show the method to calculate the NPV. All mentioned examples have a forecast period of shorter than 8 years and can be split into examples that have no residual value and examples that include a residual value. After analysing the investment proposals of Heineken, it turned out that most production equipment has an economic life of twenty years. Heineken managers confirmed this lifetime as the average lifetime.

As it turns out that Heineken’s average lifetime is much longer than the lifetime mentioned in the books about capital budgeting the following can be asked. Should the cash flows be estimated for this period? Or might it be more realistic to forecast the cash flows for a certain period and estimate a value for the period afterwards? Both possibilities are now analysed.

5.3.1. Finite life investment

This means that the forecast period should be equal to the economic life of the investment. At the end of the forecast period, a residual value is calculated and included in the cash flow analysis. This residual value is, if any, the recovery of the working capital and the after tax proceeds from the sale of the assets.

When the economic life of the investment is not too long, the estimated cash flows are relatively solid. But what for investments that have an economic life of 20 years? Estimating cash flows for such a long period is correct under the assumption that the world will not change too much. But the market Heineken is in is a highly competitive market and therefore assuming that the cash flows can be estimated for such a long time could lead to unreliable data. This data is used for the financial analysis and could lead to a positive outcome of the Net Present Value. Based on the decision rule of the NPV, the project should be undertaken.

An example is shown in Figure 5.4 to see the present value of the savings over the years.

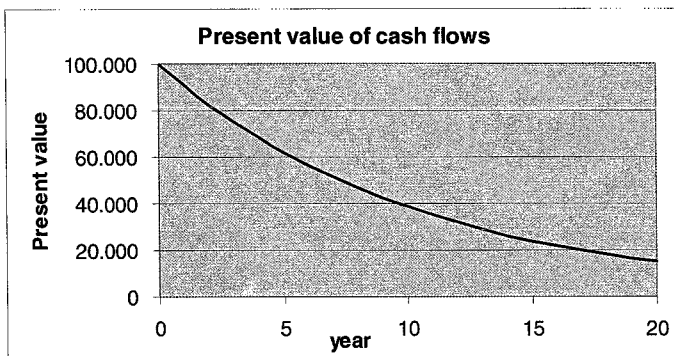


Figure 5.4. Savings discounted over the years

Because of the investment, savings can be expected each year of € 100,000. These are discounted at a rate of 10%. First one can ask itself whether the savings will remain constant over the years. This has already been discussed in the paragraph about the savings in Section 4.3.2. The other question is what the present value is of the cash flows received after 10 years. This is the area under the blue line after 10 years, which represents a present value of € 236,900. The value received within these 10 years is € 714,457. Together the present value of the savings is € 951,356. What if the capital expenditure of the investment is € 800,000? Based on the decision rule of the NPV, the investment should be accepted. If analysed carefully, the outcome of the NPV becomes positive after 10 years. Are the savings then still € 100,000, is the production equipment still in use? For managers who have to evaluate the investment proposals, including savings for 20 years is not realistic. But what should the forecast period then be? Should the forecast period be a fixed period with no residual value? Or should it be considered as on-going project? This is analysed in the following section.

5.3.2. On-going project

As the economic life of the investment is too long to be used as a forecast period, the forecast period should be chosen. After discussions with Heineken managers, the forecast period is set at 10 years. The logic behind this is that estimating the

cash flows for 10 years can be considered as fairly reliable. These cash flows should be estimated and afterwards a residual value should be calculated.

The question now is in what way the residual value should be calculated? As on-going project such as described in literature? The formula to calculate this residual value at the end of the forecast period (n) is [Shapiro, 2000]:

$$\text{Residual Value}_{(n)} = \frac{\text{Cash flow}_{n+1}}{\text{WACC}}$$

This value is also discounted to receive the present value of the residual value. Based on the example, the present value of the cash flows received in the first 10 years is still € 714,457. The residual value using the formula is € 350,494, even more than € 236,900 as calculated in the previous section.

Using this method to calculate the residual value, means that the magnitude of the Cash Flows received in year 11 will be received forever. Even though this residual value is discounted over the years, for Heineken it is not realistic that the savings on an investment project continue forever.

5.3.3. Decision rule

To compare investments, calculations should be performed in a transparent way. For Heineken is chosen to set the forecast period at 10 years for all investment types. This means that the cash flows should be estimated for 10 years. In what way the residual value should be calculated depends on the nature of the investment. The natures New Business (M&A) and Restructuring should be considered as on-going projects and use the formula of Shapiro, as explained above.

The other natures (Extension, Replacement and Other) should only take the tax benefit on the remaining depreciation into account. This is the tax benefit on the fiscal depreciation. If the tax deductible period is longer than 10 years, this value should be included as residual value, together with, if applicable, the recovery of the working capital. These cash flows are certain to be received and should therefore not be neglected, as this would understate the NPV value.

To answer the question of Section 5.2, Heineken should use method 5 as the investment is classified as a replacement investment. The value calculated represents the most realistic value, as the savings are forecasted for 10 years and afterwards only certain cash flows are incorporated. The question what value is the most realistic one, has also been asked to managers. Their answer was that it should be a negative value and by comparing the alternative methods, method 5 was the most realistic one.

Heineken understands that by using these rules to calculate the NPV, not the exact NPV value may be calculated and theoretically it may be incorrect. But after asking people who have to appraise investment proposals, if they would accept an investment proposal with a discounted payback of more than 10 years the answer was no. At least when no other clear reasons were included (strategic issues).

As a matter of fact, Heineken combines two methods in one. It uses the decision rule for the Discounted Payback method and it calculates the value received in these 10 years by calculating the Net Present Value.

5.4. Analytic methods

The analytic methods described by Meredith are analysed in this section. First the risk and opportunity analysis is analysed as this method can be used to evaluate the project risks and opportunities. The other methods, capital rationing and forecast analysis are explained afterwards. The objective of the analytic methods is to increase the mutual understanding of the proposal between the initiating OpCo and the Executive Board.

5.4.1. Risk and Opportunity analysis

In Chapter 2 is mentioned that the project risk is only described in qualitative terms. The Net Present Value, Internal Rate of Return and the Discounted Payback do not take the project risks of an investment into account. A way to calculate the risk and opportunity analysis is to perform a sensitivity analysis. As stated in Chapter 2, this should also be included in the investment proposal. Unfortunately, at none of the analysed investment proposals, a sensitivity analysis was included.

As none of the investment proposals included a sensitivity analysis, using more sophisticated methods to measure the risks and opportunities as described in Appendix I, is not realistic for Heineken. It should first make sure the current information is included in the proposal in the right way.

The approach of a **risk and opportunity analysis** is to simulate the projects under consideration to determine the variables of interest – benefits, costs, yields, capacity and so on – and describe the outcomes statistically or graphically. A method to perform such an analysis is a sensitivity analysis.

The approach in sensitivity analysis is to show the effect on profitability of the likely variation in key inputs, such as investment, sales price and sales volume, savings and cannibalisation effect. To change the profitability by one percent or unit, how much does the input variable need to change? For example if the sales price drops by 2 percent, the profitability of the project will change with one percent.

For Heineken the critical assumptions made should first be described in qualitative terms and form the input for the sensitivity analysis. What the critical assumptions are is left to the separate OpCo's; as they know best what the risks and opportunities are regarding the investment.

An example is presented in this section, to show the impact on the NPV value if one parameter is changed.

The investment is a new packaging type for a can. The following data is uncertain and therefore a sensitivity analysis is performed by showing the impact on the NPV value by varying the input data with + and -/ 25%. This leads to:

• Forecasted Volume:	22,500 HL	30,000 HL	37,500 HL
• Cannibalisation effect	15%	20%	25%
• Growth in the next 4 years	1.5%	2.0%	2.5%
• Capacity HL / Hr	75 HL / hr	100 HL / hr	125 HL / hr

What the effects of these changes are is shown in the Figure 5.5. In Appendix L, the input data and the spreadsheets are shown to calculate the NPV's.

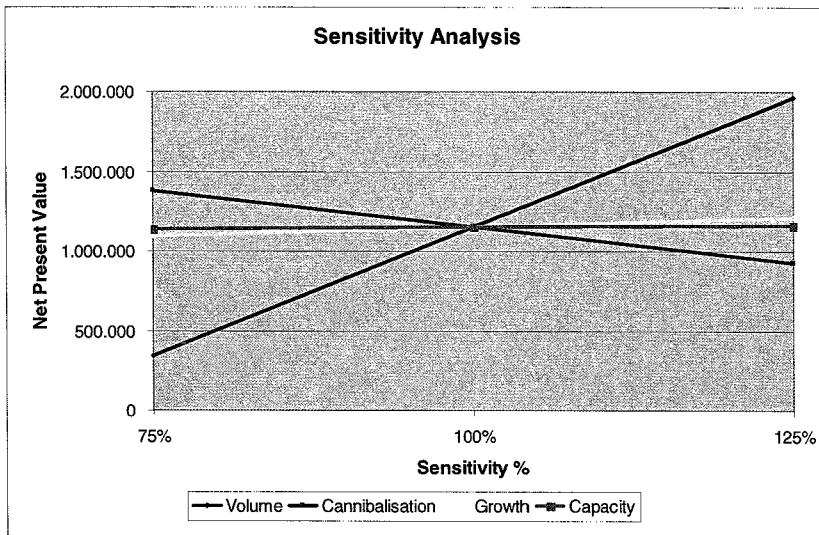


Figure 5.5. Sensitivity Analysis New product Introduction

Based on the sensitivity analysis, it can be concluded that for this product introduction, the forecasted volume has the most effect on the Net Present Value calculation. The change in the capacity per hour has almost no impact.

This sensitivity analyses helps the Executive Board and the departments who have to evaluate the investment to understand what the critical assumptions are and whether these are forecasted correct.

5.4.2. Capital rationing

As is described in Appendix I, the scenario for capital rationing consists of a number of projects competing for limited funding. Two methods exist to select investment projects on an economical basis, the NPV and the IRR.

In practise, making a selection of investment proposals based on the NPV and IRR may be difficult for Heineken, as the proposals are submitted and evaluated at different time intervals. What Heineken can do is to **compare** investments within the same nature. For the same natures apply the same guidelines and therefore can be compared with each other. Investments proposed today can then be compared with already submitted investments to see the differences between them and the value potential of the proposed investment in relation to the value potential of the already evaluated proposals. As capital rationing is part of the portfolio analysis it is out of the scope of this assignment.

5.4.3. Forecast analysis

At certain investment types, the local OpCo needs to determine the revenues regarding the investment. This applies to the natures "New Business", "New Product Introduction" and "Extension". This value should be estimated with great care as the revenues have a large impact on the value calculated using the three evaluation methods. To evaluate an investment proposal, one should not only state what the expected revenues will be but also how this value is arrived.

This should be described in qualitative terms and depends on the kind of investment. For New Business, the OpCo should describe aspects of the total beer market and what on what customers the OpCo focuses on.

For extension and new product introduction, one should estimate at what channels the beer is sold, what the cannibalisation effect is and at what customers it focuses. After discussions with managers who estimate forecasts, it turned out that there is no general guideline possible to calculate the forecasts. The input data is too diverse and depends on the local market conditions.

Because of this Heineken should not develop a guideline on how the forecast should be calculated, but should only include in the required information for the proposal that for these investment types a forecast analysis should be included. The evaluation departments can then evaluate whether something is missing in the forecast analysis or whether the data forecasted maybe too optimistically.

5.5. Strategic evaluation

As is described by Meredith, some investment proposals cannot be justified only on the economical aspects. Therefore, the strategic aspects of the investment needs be written down as well. Meredith identified four strategic methods that can justify an investment: the relation with the business objectives, the technical importance, Research & Development and competitive advantage.

After analysing whether Heineken can group investments on its strategic aspects and identify general strategic aspects, the conclusion was that the investment proposals of Heineken are too diverse to group the strategic issues to a number of categories. Also keeping in mind that Heineken applies a decentralised organisational management model, not too many guidelines should be set as almost no flexibility is left to the OpCo's.

The issue that not all investment proposals can be justified on the economic aspects still stands. Therefore should Heineken include in the required information for the investment proposal, a section on the strategic aspects. In the manual examples should be included to show some possible strategic aspects. One can think of brand health increase, legislation issues, competitive advantage, etc.

5.6. Conclusion

In this chapter is analysed what methods Heineken should use to evaluate investments and how these methods should be used.

By having clear guidelines on the forecast period and the residual value, Heineken can compare investments within the same nature as they are calculated in the same way. Because the forecast period is set at 10 years, the value calculated represents the best estimate and realistic value. Based on this value a well-founded evaluation can be made.

To make sure the project risks are taken into account, a sensitivity analysis has to be performed on the most critical assumptions regarding the investment. For certain investment types a forecast analysis should be included to show how the revenues are forecasted. By describing the strategic aspects of an investment as well, the mutual understanding between the OpCo's and corporate office increases and a better evaluation can be made.

6. Redesign Evaluation Procedure

Now that the cash flows required for the evaluation are identified as well as the methods Heineken should use, the current procedure can be adjusted. This adjustment can be split into adjustment and extension of the current guidelines on cash flows and a redesign of the evaluation methods.

To make sure all issues mentioned in Chapter 2 are taken into account, these issues are repeated and form the prerequisites for the redesign. This is described in Section 6.1. Section 6.2 describes what guidelines should be set and incorporated in the manual. Section 6.3 describes the evaluation methods. This chapter ends with the conclusions in Section 6.4.

6.1. Prerequisites for the redesign

At first, the issues are repeated and afterwards the prerequisites will be presented.

6.1.1. Issues identified

The following issues were identified in Chapter 2 and chosen to work out in detail:

- Presently, not all relevant information is included in the investment proposal
- Nature specific characteristics are not (always) or in different ways taken into account at the cash flow analysis
- Project specific risks are only described in qualitative terms

These issues lead to the following

- Managers who have to evaluate investment proposals have doubt about the calculated economic value. Therefore they make their own calculations, in which assumptions are made (guestimating) as not all information is available
- Because of this, these managers focus more on the strategic aspects of the investment and not on the economic and the strategic aspects
- Investments are not financially comparable

6.1.2. Prerequisites redesign

These issues and problems should be solved and form the prerequisites for the redesign.

- Comparison of investments based on financial calculations should be possible, therefore the calculations should be made in a transparent way
- Economic and strategic aspects of investments should be included in a thorough way to make a well-founded decision
- Nature-specific cash flows should be taken into account
- Guidelines should not dictate in too much detail how everything should be calculated. Heineken applies a decentralised organisation model and the OpCo's are responsible for their own results. To be able to evaluate an investment proposal in a transparent way, clearer guidelines are needed.

6.2. Redesign guidelines on cash flows

Conclusion of Chapter 2 was that Heineken should focus on its guidelines on cash flows. These have been identified and analysed. This section describes what guidelines Heineken should use. First the general guidelines are described and afterwards the nature specific guidelines.

6.2.1. General guidelines

The current guidelines have been analysed in Chapter 4. Certain guidelines need to be adjusted and extended, others were clear enough and remain the same. The general guidelines apply to all natures. The, in literature research described, do and don'ts for the cash flow analysis have been made Heineken specific.

Forecast period

The main issue is that currently no clear guideline exists on what the forecast period should be. After research on what the implications are, it is proposed to set the forecast period at 10 years. The logic behind this is that forecasting cash flows for longer than 10 years lead to unreliable data. The other reason is that an investment should not be accepted on economic terms if the discounted payback period is longer than 10 years. The forecast period of 10 years starts after the first capital expenditure. Therefore, the forecast period should be set at 10 years.

Tax effect on cash flows

As Heineken is only interested in the cash flows for the company, the tax effect should be included in the financial calculation.

Tax effect on depreciation

For the fiscal lifetime of the investment, the fiscal depreciation is tax deductible. This leads to a cash inflow. Important to remember is that the fiscal lifetime should be used for the tax benefit and not the economic lifetime.

Local currencies and local WACC's

Cash flows should be estimated using local currencies. Country risk is included in the WACC rate and therefore the cash flows should be estimated using the local currencies, as in the WACC rate currency (in)stability is already included.

Cash flows should be on a nominal basis

Cash flows should be calculated on nominal basis, taking inflation into account. Therefore Corporate Accounting should communicate the local WACC rates and the local inflation rates used for the WACC rate. To make sure that the same inflation rate is used, corporate staff should include in the WACC rate overview explicitly the inflation rate.

Additional country risks

Because additional country marks-ups are no longer included in the WACC rates, use different cash flow scenarios in case you perceive country risks. Risks should be included in the cash flows and by the sensitivity analysis.

Mutually exclusive alternatives

The main alternatives should be described in the investment proposal and afterwards the cash flow analysis should be performed for these alternatives. This should be done to show the financial impact of the main alternatives.

Cash flow analysis should be based on Heineken NV perspective

The cash flow analysis should show the financial impact for Heineken NV. Heineken NV is only interested in how much additional money is received in the future (incremental reasoning). Therefore only those cash flows should be taken into account that will change the Heineken NV cash flows as a direct result of the project being accepted.

Even though OpCo's initiate investment proposals, they should not measure the financial implications for the OpCo but for Heineken NV. This implies that transfer prices should not be used for the cash flow analysis.

Cash flow analysis should look at the future cash flows

The perspective of investment projects should be incremental and forward looking. Therefore past expenditures should be ignored since they cannot be recouped even if it is decided not to go ahead with the project. Do not use accounting statements, as these are historical.

6.2.2. Nature specific guidelines

The above-mentioned guidelines apply to all natures. As is described in Chapter 4, different natures lead to different cash flows. These cash flows have been identified in Chapter 4 and are based on the characteristics of the natures. This section first describes the guidelines that are specific for the natures. These guidelines are: On-going investments, Residual Value, Cannibalisation, Additional Volume and Working Capital. Afterwards an overview is presented per nature of which specific guidelines should be incorporated in the cash flow analysis.

On-going investments

The objective of on-going investments is to keep the asset base up to standard and should be included when the investment continues after its forecast period. This applies to the natures "New Business" and "Restructuring".

To keep the asset base up to standard, the on-going investments should be equal to the depreciation value based on the economic lifetime. After discussions with Heineken, it is chosen that the asset base level should be 50% of the initial value. With an average lifetime of 20 years, the on-going investments should be included from year 10 onwards. As the forecast period is set at 10 years, on-going investments are included in the residual value.

Residual Value

Residual value should be included at the end of the forecast period. Two different methods exist to calculate the residual value, the finite project residual value and the on-going residual value. What method should be used depends on the nature of the investment.

For the nature “New Business” and “Restructuring”, the residual value should be calculated from an on-going perspective. The investment project will continue after the forecast period. The formula of the Residual Value (RV_{ongoing}) is:

$$RV_{\text{ongoing}} = \frac{(\text{Free Cash Flow}_{n+1} - \text{Ongoing investments})}{WACC}$$

This value should be included in the cash flow analysis at year 10.

For the natures “New Product Introduction”, “Extension” and “Replacement”, the residual value should be calculated from a finite project perspective. Only those cash flows should be included that are certain to be received after the forecast period. These are the tax benefits on the remaining fiscal depreciation and the recovery of the working capital.

Cannibalisation

Cannibalisation means that because of a new product introduction the new product replaces sales from one or more of the company’s existing products.

If for example, it is estimated that of the forecasted volume of the new product, 10% comes from the currently sold volume, the additional volume for Heineken is 90% of the forecasted volume of the new product. The impact of cannibalisation has a substantial impact on the outcome of the analysis and should therefore be estimated thoroughly.

Additional Volume

Some investment decisions have an impact on the forecasted volume over the years. In general new product introductions lead to additional volume (forecasted volume – cannibalisation) as well as extension decisions because the current capacity is not sufficient due to volume growth. This additional volume leads to additional cash flows. After research it was decided that the following cost lead to additional cash for this additional volume:

Additional cash flows = Variable selling cost + variable production cost + “semi-variable” production cost.

The semi-variable production cost consist of

- Personnel Internal transport
- Energy & Water Internal transport
- Energy & Water Brewing
- Personnel Packaging
- Energy & Water Packaging

Working capital

The current guideline about working capital states that the change in Working Capital Required has an impact on cash flows. This guideline should be made clearer and should describe how the change in Working Capital can be estimated.

Heineken International

For the natures “New Business” and “Restructuring”, the total working capital should be estimated. This working capital consists of Stock, Trade Debt and Trade Credit.

Total Working capital =

- Stock level: which can be split into
 - Fixed stock: Benchmark with other breweries
 - Variable stock: Volume * days of inventory * purchase price
- Trade Debt: Debt limit * average purchase price products on account
- Trade Credit: -/- Credit limit * average sales on account

The fixed stock consists of stock on spare parts for equipment. Variable stock consists of stock on raw materials, packaging materials, goods-in-transition and of stock on finished products.

For the natures “New Product Introduction” and “Extension” only the incremental working capital level needs to be estimated. For these investment types it is decided only to calculate the additional working capital on variable stock, because the incremental debt and credit have a negligible net effect on the working capital level.

Incremental Working Capital = incremental volume * days of inventory * bought-in price

The nature Replacement has no effect on the Working Capital level as the investment leads to no change in volume.

Overview

In Table 6.1 an overview is presented of the guidelines per nature.

Table 6.1. Overview guidelines per nature

	On-going investment	Residual Value	Cannibalisation	Additional Volume	Working Capital
New Business	Include	On-going	Exclude	Exclude	Total
New product	Exclude	Finite	Include	Include	Incremental
Extension	Exclude	Finite	Exclude	Include	Incremental
Replacement	Exclude	Finite	Exclude	Exclude	Exclude
Restructuring	Include	On-going	Exclude	Exclude	Total

6.3. Evaluation methods

This section describes what evaluation methods should be used by Heineken to evaluate investments. The methods have been analysed in Chapter 5 and can be split into economic evaluation methods, analytic methods and strategic aspects of the investment. These are described per section.

6.3.1. Economic evaluation methods

The economic evaluation methods have been analysed in Chapter 5. The conclusion of this analysis is that Heineken should use three evaluation methods. These are described in short below. Because each method has advantages and disadvantages the combination of all methods should be used to evaluate an investment proposal as well as to compare investment proposals, regardless of the nature.

Discounted Payback

The discounted payback is the time – taken from the end of the first year in which there is a significant capital outlay – for the cumulative discounted cash flows from the project to repay the initial outlay. The evaluating departments should evaluate this period and compare it with similar investments of the same nature.

The objective of the discounted Payback to compare investments is that the sooner the investment is earned back the better. The advantages are that this period is easy to compare and communicate and that it takes into account that Heineken is in a highly competitive market. Drawback is that it should not be used to evaluate investments that differ in magnitude of the investment and that it does not take cash flows after the period into account.

Net Present Value

To measure the potential value of the investment, the Net Present Value is calculated. This method incorporates the total value within the forecast period and the residual value. The advantage is that the value of the investment is combined with the value of the future cash flows. As stated by Bertoneche, companies are not in business to maximize percentages or periods but to maximize value creation [Bertoneche, 2001].

The objective to compare investments is that the investment with the highest value is the most attractive one for Heineken. It takes all relevant cash flows during the forecast period into account as well as the residual value of the investment and has a direct link with the principle of shareholder value creation.

Internal Rate of Return

The Internal Rate of Return is defined as the percentage discount rate that will give the net annual cash flows a cumulative present value of zero; in other words the discount rate, which will bring the cash inflows equal to the cash outflows. This value should be compared to the local WACC rate to evaluate whether the investment proposal is interesting for Heineken.

To compare investment projects with each other, the local WACC rate should be subtracted from the IRR percentage. The percentage above the WACC rate can then be used to compare investment projects with each other. Comparison of

investment proposals in this way can only be used for investment proposals that have approximately the same initial capital expenditure and the same lifetime of the investment. Comparing percentages is easy to use and communicate and this method takes all relevant cash flows into account.

6.3.2. Analytic methods

In Chapter 5, two analytic methods are chosen to increase the mutual understanding between the OpCo and the Executive Board. These two methods are now evaluated.

Risk and opportunity analysis

The critical assumptions regarding the investment proposal are the project risks and opportunities of the investment. These risks and opportunities are only partly included in the economic evaluation method and form the parameters for the sensitivity analysis. This analysis measures the impact of a change in one of the parameters on the Net Present Value.

What the most critical assumptions are, is left to the Operating Companies, as they know best what assumptions are made and what the range of these parameters is.

Forecast analysis

For investment decisions at which revenues are forecasted, a forecast analysis should be included. This analysis should substantiate the projected volume. Based on market research, the forecast analysis should clearly describe what assumptions are made, for example on what customers the investment focuses, what the expected cannibalisation effect is, in how many stores the products are sold. By providing this information, the appraisers have a better overview on the revenues and can evaluate whether this is realistic or not. An exact calculation method is not developed as the forecast analysis depends too much on the local market conditions and the type of product.

6.3.3. Strategic aspects

Some investment proposals cannot be justified by economic and analytic approaches. A description of the strategic aspects of the investment should be included in the investment proposal. If available, a summary of research results should also be included.

If for example the brand health of a product is low, one should include a summary of the report that investigated the brand health of that product.

Because many different strategic aspects exist, no formal guideline is developed.

The strategic aspects are included to increase the mutual understanding regarding the investment proposal. The corporate departments can then evaluate the described strategic aspects.

6.4. Conclusions

- A prerequisite is that corporate staff should not set too many guidelines, as this is in conflict with the decentralised organisational model. Therefore it is chosen only to include guidelines that apply to all investment proposals of the same nature and that no guidelines are given on how the revenues and cost should be

estimated. If this were done, many guidelines would have been necessary to incorporate all aspects of the different investments.

- As described in Section 6.1, a prerequisite of the redesign is that the evaluation should be based on both economic and strategic aspects. By setting clear guidelines on the cash flow analysis, the economic aspects of the investment can be evaluated in a transparent way. By describing the strategic aspects as well, all relevant aspects are evaluated and a clear overview exists on what the purpose of the investment proposal is and whether it is interesting (enough) for Heineken.
- To compare investment proposals of the same nature, all three methods should be used. When the guidelines are followed, investments can be compared in a transparent way.
- After describing clear guidelines on which cash flows and the way they should be incorporated in the cash flow analysis, a transparent procedure exists to submit and evaluate investment proposals. These guidelines are divided into general guidelines that are applicable to all investments and nature specific guidelines. The nature specific guidelines make sure that the characteristics of the different natures are included in the evaluation procedure.

7. Implementation & Validation

In this chapter is described in what way the adjusted evaluation procedure should be implemented and what the effects of the changes are. The implementation plan is described in Section 7.1. In Section 7.2, the adjusted manual is evaluated. Two submitted investment proposals are compared to the investment proposals based on the redesign of the current manual. Section 7.2.3 describes the reaction of managers on the adjusted procedure.

7.1. Implementation plan

The adjusted evaluation procedure can only have its effect if implemented. As stated in Chapter 2, Heineken chooses to adjust its current procedure instead of developing a new procedure. How this manual should be adjusted is described in Section 7.1.1. After the adjustment of the manual, this new manual should be communicated throughout the company so that managers know that an up-dated version of the manual has been developed. This communication process is described in section 7.1.2. Section 7.1.3 describes what else needs to change to make sure the adjusted manual is actually used.

7.1.1. Adjustment manual

The current manual is divided into three parts, the description of the capital budgeting procedure, description of the different natures and a description of the evaluation methods. Only the third part is adjusted, the other parts remain the same (Chapter 1-6 current manual).

Chapter 7 of the manual describes what information should at least be included in the investment proposals. It also describes in what way the strategic aspects should be included. This is described in Appendix M.

Chapter 8 describes the methods used to evaluate an investment proposal. The evaluation methods are divided into economic and analytic methods.

The rules and guidelines for the cash flow analysis are described in Chapter 9. This is divided into general guidelines and per nature is described what nature specific cash flows should be included.

In the appendices of the "Funds Planning & Application" manual two examples are included to show how the guidelines should be included in the cash flow analysis.

After the adjustment of the manual, Corporate Finance needs to approve it, as they are the formal owner of the manual. In agreement with Corporate Finance it is decided to implement the adjusted manual not earlier than the first of January 2003.

7.1.2. Communication within Heineken

After the adjustment of the manual, it should be communicated that Heineken has an up-dated version of the funds application manual.

It is proposed to send the adjusted manual to the OpCo's / Clusters with inclusion of an introduction letter. This letter will explain what the objective for the adjustment was. The advantage of the adjustment is two-way. On one hand, OpCo's have more

guidelines on how to make a better proposal and know what is expected from corporate office and on the other hand the corporate staff departments do not have to make their own calculations anymore and can concentrate on the judgement of the proposal.

7.1.3. Adoption of the adjusted manual

To make sure that the adjusted manual is used in the future; feedback needs to be given to the initiating OpCo's. Next to that, attention needs to be given during the investment-training programme.

Feedback to OpCo's

The current manual describes that feedback should be provided to the initiating OpCo's. Currently this happens in a fragmented way and should be presented in a more structural way. Presenting this feedback is essential to improve the quality of the investment proposals and teach managers how to write down a proper investment proposal.

The evaluating departments should not only appraise the proposed investment and send their conclusions to the executive board but should also evaluate the quality of the investment proposal. By giving them feedback on the quality of the investment proposal, the quality of the investment proposals is expected to increase in time and is in line with the Heineken philosophy of being a decentralised organisation.

OpCo's get a better understanding of whether their investment proposal meets the Heineken standard and corporate office can evaluate whether OpCo's lack knowledge to write down a proper investment proposal.

The focus of the evaluating should be on the business and not on the administrative procedure. However, it is essential that the right figures are used and the correct calculations are made. Therefore, providing feedback is crucial.

Training on how to write down an investment proposal

Currently, one of the courses of Heineken University is a financial course for non-financials. This training should incorporate the submission of investment proposals and how this should be written down.

To train (financial) managers within Heineken, a financial course will be developed by Corporate Finance. This course will go into detail on how to write down an investment proposal as well as what the difference is between cost and cash. This training is going to be developed next year.

By training managers on how to write down an investment proposal, managers know what is expected from them when they want to initiate an investment and what is relevant for a proper proposal.

7.2. Validation

The validation cannot be based on real life examples as the adjusted manual is implemented next year. To measure the impact of the adjusted manual, two investment proposals submitted last year are chosen and rewritten. These are Brewhouse 's-Hertogenbosch and Heineken Identity Can and are described in the following sections. Both proposals and the adjusted manual are presented to one of

the problem owners and to the formal owner of the manual. The feedback is described in Section 7.2.3.

7.2.1. Brewhouse 's Hertogenbosch

The investment proposal is to replace two brewhouses by one with twice the capacity. These two brewhouses have been in use for 40 years.

Strategic aspects

Quality of the current brewhouses is too low, which leads to a lower grade of the beer quality. This has been investigated by Heineken Technical Services. The conclusion was that to maintain the quality of the beer taste one of the current brewhouses needed to be renovated within one year.

Economic evaluation

At the analysis of the replacement many scenarios have been compared and evaluated on their financial and strategic aspects. The chosen alternative is now further discussed.

By the replacement of the Brewhouse, savings can be expected of € 1,790,000 per annum. The cash flow analysis shows the incremental cash flows of Brewhouse 4 in relation to the current brewhouses, see Appendix N.

This analysis has been checked on the guidelines included in the adjusted manual. The following issues were identified:

- Tax effect on cash flows is not taken into account
- Postponement (taking the renovation into account) possibility is not shown
- Forecast period is 20 years
- WACC rate and inflation rate are not clearly shown

These issues have been incorporated in the adjusted cash flow analysis in Appendix N. Also is shown what the effect is if the investment would have been postponed by 1 year and by 3 years. The results are shown in Table 7.1. With the submitted proposal, the proposal is meant that is submitted by the local OpCo, with the suggested proposal is the proposal meant following the adjusted manual.

Table 7.1. Impact of adjusted procedure

	Submitted proposal	Suggested proposal		
		2003	2004	2006
NPV	- € 1,400,000	- € 6,559,325	- € 9,559,823	- € 8,546,106
IRR	6.0%	< 0 %	< 0 %	< 0 %
DPB	> 20 years	> 10 years	> 10 years	> 10 years

As can be seen in the Table, Heineken should make the investment in 2003, as postponing the investment dilutes more value. The submitted investment is less negative because the forecast period is set at 20 years (savings remain for 20 years) and tax effect on cash flows was excluded. The reason that postponement makes the proposal more negative is because Heineken must renovate Brewhouse 2 in year 2003, which leads to an additional capital expenditure of € 2,400,000.

Analytic methods

By including a sensitivity analysis no extra value to the investment proposal is added, because the NPV is already negative. Heineken definitely needs to replace its Brewhouse because of quality reasons.

7.2.2. Heineken Identity Can Hong Kong

In 2001, Heineken has developed a new packaging type for cans. Hong Kong wants to replace its current cans by these cans and submitted an investment proposal. This proposal is analysed and based on the adjusted manual new calculations have been performed. The three evaluation approaches are described in this section.

Strategic aspects

- Brand health oriented

New product is introduced to hold / stabilise existing trade and retail price of current products. A market research has been done to analyse the brand image of Heineken (see the table below). The new product should assist in re-establishing the brand image of Heineken in Hong Kong.

Overview of Brand image Heineken 2001 vs. 2000

	2001	2000
High quality	21%	32%
Expensive	19%	28%
Reliable brand	24%	33%
Worth paying the extra money for	14%	20%
Reputable brewery	20%	28%

- Commercial health oriented

New product is introduced to hold / stabilise existing trade and retail can price points for Heineken in environment and context of declining average can retail price year on year. Product is also introduced to increase or stabilise the market share in a stagnating beer market (growth 1.9% in 2001 vs. 2000 and decline 6.5% in 2000 vs. 1999)

Economic evaluation

In Appendix O is the input data and the cash flow analysis submitted by Hong Kong shown. These are analysed and the following issues were identified:

- Operational cash flows are based on transfer prices
- No split is made between the change in production cost and the additional cash flows because of additional volume
- Investments are excluded in the proposal
- Residual value is calculated from a on-going perspective
- Tax effect on cash flows are not taken into account
- WACC is including inflation, while inflation is not incorporated in the cash flows
- License fees to corporate office are included in cash flow analysis

These issues have been solved by following the adjusted manual and resulted in the cash flow analysis presented in Appendix O. The spreadsheets used to calculate the cash flows are also included.

The differences in the outcome of the NPV, IRR and discounted payback are shown in Table 7.2.

Table 7.2. Impact of adjusted procedure

	Submitted proposal	Suggested proposal
NPV	€ 2,358,387	€ 1,998,904
IRR	25,7%	34 %
DPB	8 years	4 years

As can be seen, the values calculated following the new guidelines are higher than the submitted values.

This is due to the fact that:

- Corporate license fees are excluded from the analysis (fee paid at corporate office)
- Not all cost lead to cash for additional volume
- Profit made by brewery is excluded from the costs (was considered as cost by using transfer prices)
- WACC excluding inflation is used (estimated inflation rate is 2%)

Inclusion of investments and tax effect on cash flows in the analysis had a negative effect on the value calculated as well as the exclusion of the residual value.

Cannibalisation is not taken into account, as this percentage is 100%, because the volume of the new can replaces the total volume sold.

Analytic evaluation

The critical assumptions made at the analysis form the basis for the sensitivity analysis. These assumptions are:

- Volume growth 2% extra growth in year 2003 and 1% in year 2004
- Price growth 2% less decrease in year 2004 and 1% in year 2005

The volume growth percentage is varied by + and – 25%, same for the price increase. Based on these variances can be seen in Figure 7.1 that the NPV remains positive.

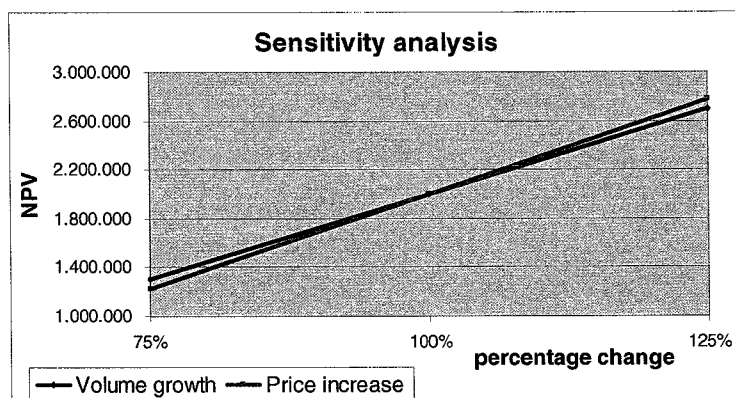


Figure 7.1. Sensitivity analysis

7.2.3. Validation by interviews

To validate whether the adjusted manual solve the issues mentioned in Chapter 2, the investment proposals discussed above and the adjusted manual have been discussed with one of the problem owners of the assignment as well as with the formal owner of the Funds Planning and Application manual.

Mr Mulder, production strategy manager, Corporate PP&C

The classification of investments to nature was the first step to bring clarity in the investment portfolio of Heineken. The next step was to analyse in greater detail the evaluation of investments and the economic justification. Currently, investment proposals are often limited to a technical specification of the investment at hand. By structuring the required information for the investment proposal into strategic, economic and analytic justifications, the evaluation is based on the business issues concerning the investment.

By providing clear guidelines on what cash flows are relevant for the different natures and how these cash flows should be calculated, OpCo's are assisted to include the relevant cash flows in the right way. The calculated value gives a better representation of the financial risk of the investment. Investments can therefore be evaluated on the economic and strategic aspects of the investment and not mainly on the strategic aspects.

To make sure the adjustments are adapted within Heineken, three steps are essential. First, the broad communication on the up-dated version of the manual, secondly the feedback on submitted investment proposals and finally the incorporation in relevant trainings. Corporate Production Policy & Control and Corporate Finance will include in current trainings and develop new trainings to make sure OpCo know how to write down a proper proposal. A discussion will be held with the relevant corporate departments on how feedback can be provided in a more structural way.

Mr. Hosman, Control Services Manager, Corporate Finance

The adjusted manual has been discussed with Mr. Hosman.

The current manual describes in general terms what information should be included in the proposal as well as what cash flows are relevant. Lacking however in the current manual is in what way the cash flows should be calculated. Further, that the required information is not presented in a structured way. The proposed manual largely resolves these disadvantages and gives clearer guidelines on making a proper proposal.

A financial training will be developed to give insight in the aspects of financial management. A case study on how to make a proper investment proposal will be included in this training. The example presented in the manual can be used as an example.

8. Conclusions and Recommendations

The conclusions and recommendations of this assignment are presented in this chapter. In Section 8.1 are the issues identified in Chapter 2, repeated. Section 8.2 summarises what has been done to solve these issues. In Section 8.3 is described what the main conclusions of this research are and in Section 8.4 are future research possibilities for Heineken described. It will go into more detail what Heineken can do to create a strategy aligned investment program.

8.1. Issues identified

Heineken aims to be the best international brewing group in financial terms and wants to play an active part in the consolidation of the beer market. Heineken should therefore focus on the financial performance of its current assets as well as on the financial performance of future investment opportunities. This assignment focuses on the evaluation of investments.

Last year, Heineken introduced the classification of investments to their nature. This classification is the first step to get a better understanding whether Heineken invests in the right place, at the right time, for the right amount and for the right reasons. The investment procedure was adjusted to include this classification. The rest of the manual remained the same. The next step for Heineken is to evaluate its investment procedure and incorporate the characteristics of the different natures.

Based on desk research, interviews and organisational context, the following issues were identified and chosen to work out in detail:

- Not all relevant information is included in the investment proposal
- Nature-specific characteristics are not (always) or in different ways incorporated at the cash flow analysis
- Project specific risks are only described in qualitative terms

Because of these issues Heineken faces the following problems

- Managers evaluating investment proposals have doubt about the economic value. Therefore they make their own calculations, for which assumptions are made (guestimating)
- Because of this, the evaluation focuses more on the strategic aspects of the investment and not on the economic and strategic aspects
- Investments are not financially comparable to each other

8.2. Adjustment current procedure

To solve these issues, the characteristics of the different natures were identified and the current procedure has been analysed. The current guidelines have been made clearer to make a transparent cash flow analysis. Nature specific guidelines have been developed to take the characteristics into account.

Afterwards, the current evaluation methods have been analysed and adjusted. New evaluation methods have been introduced and current methods have been worked out in more detail to show how these methods should be used.

In Chapter 6, the current manual has been redesigned and an implementation plan has been developed to implement the adjusted manual and make sure that the adjusted manual is adopted.

8.3. Conclusions

At the validation two examples are presented to show the differences between the current manual and the adjusted manual. Based on the adjusted manual and on the reactions of Heineken managers, the following can be concluded:

- Because clear guidelines have been set, the financial analysis of the investment proposal is made in the same way. An investment proposal can now be evaluated on its content and not on the rightness of the calculations made.
- Investment proposals can be compared to each other on financial terms as the calculations are made in a transparent way and the characteristics are included.
- By including analytic and strategic aspects of the investment as well, a better understanding is achieved on the purpose and the risk exposure of the investment.
- Because of clear guidelines and because feedback on the proposals are sent to the initiating OpCo's, OpCo's have a better understanding of what is expected and learn how to make a better proposal. The quality of the proposals will increase in time, which makes a better evaluation possible.

Using clear guidelines and incorporating nature-specific cash flows makes sure that the value calculated represents a realistic value of the investment. This determines whether an investment project adds value to Heineken and increases its financial performance.

8.4. Recommendations

- One of the objectives of Heineken is to create a strategy aligned investment program. To achieve this, the information included in the investment proposal should be complete and calculated in the right way. This is where this assignment has focussed on. The next step for Heineken is to perform a portfolio analysis. This analysis measures the performance of the current assets in relation to the performance of future investments. To increase the financial performance, Heineken should develop a method to evaluate the total portfolio of assets. In Appendix G the portfolio analysis by DSM is described.
- Another issue is monitor the actual expenditures better and compare these with the budget available. This prevents Heineken from finding out that the actual expenditures exceeded the budget at the ending of the year. By monitoring it constantly, Heineken has a better overview of how much budget is left and whether this will be exceeded. If this is the case Heineken should develop a method to make a selection of the investment projects.

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Appendices

- Appendix A. Valuation
- Appendix B. Capital Budgeting Process at Heineken
- Appendix C. Weighted Average Cost of Capital
- Appendix D. Interviews
- Appendix E. Fund plan
- Appendix F. Capital Budgeting Process by Shapiro
- Appendix G. Portfolio Analysis
- Appendix H. Economic justification approach
- Appendix I. Analytic justification approach
- Appendix J. Strategic justification approach
- Appendix K. Analysis economic evaluation methods
- Appendix L. Spreadsheets Sensitivity Analysis
- Appendix M. Information included in proposal
- Appendix N. Spreadsheets Brewhouse
- Appendix O. Heineken Identity Can