Part I:
A Survey into the Strategic Alignment Efforts and Experiences of Organisations

Part II:
A Method for Assessing Strategic Alternatives based on the Expected Return and Associated Risk

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A research paper concerning two aspects of strategic management

MSc in Business Administration
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UNIVERSITY OF TWENTE.

A Survey into the Strategic Alignment Efforts and Experiences of Organisations

and

A Method for Assessing Strategic Alternatives based on the Expected Return and Associated Risk

Master Thesis

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Date and place

August 20th, 2014
Enschede, The Netherlands

Management summary

Initially this research served one overall research goal combining two aspects of strategic management. However, the two aspects explored are undeniably dissimilar in terms of research approach and research methodology. The choice is made to divide the research paper into two researches which have a slight overlap.

The ***first research*** unravels the efforts and experiences of organisations regarding strategic alignment through the use of survey research. Understanding about strategic alignment and about what influences strategic alignment is created. The five most significant negative influences on strategic alignment are identified, as well as five main positive influences on reaching strategic alignment. The ***second research*** fills the scientific gap in assessing strategic alternatives based on a trade-off between return and risk. A method is developed for assessing strategic alternatives based on the expected return and associated risk. With the use of this method organisations can make well-informed strategic decisions. The method supports the organisations in choosing the strategic alternative that is suitable, feasible and acceptable.

The ***first research*** into strategic alignment can be found in **Part I** of this paper. Strategic alignment is the ability to create strategic fit between the organisation's position within the competitive environment and the design of the appropriate structure to support the execution, in such a way that a strategy is developed while considering the supporting structure (IT) and that operational goals and actions are in line with the overall strategy (business).

The research is conducted because of an absence of recent information about the organisations' strategic alignment efforts and experiences. Organisations often fail to successfully develop or implement their strategies, and thus fail to reach strategic alignment. The reasons behind the experienced difficulties are examined in this research. The addressed problem is that there is no way to tell what is causing organisations to fail in developing and implementing their strategies without an analysis of the efforts and experiences of organisations regarding strategic alignment. The main research question is as follows:

> *Why do organisations fail to develop and implement strategies successfully, thus fail to reach strategic alignment, and what do organisations have to improve to reach strategic alignment?*

A theoretical framework shows how existing literature is gathered and critically reviewed to collect initial understanding about strategic alignment and the variables influencing strategic alignment. With the use of literature a research model is built in which relationships are proposed between strategic alignment and four variables; which are strategic alignment indicators, culture and shared beliefs, organisational capabilities, and communication. The strength of the relationships are defined by testing the research model and related hypotheses.

A survey strategy is used to collect large amounts of data from the people who have knowledge about their organisation's strategic alignment efforts and experiences. A self-administrated and internet-mediated questionnaire is developed: the Strategic Alignment survey. The questionnaire consists of closed-ended and open-ended questions. The responses on these questions will be analysed with the use of IBM SPSS Predictive Analytics-software. The questionnaire is pre-tested to solve errors and ambiguities. The pre-test is divided into two parts: a sparring session with some experts and letting a selected group complete the questionnaire. With the results from the pre-test the questionnaire is tested for reliability with Cronbach's Alpha. In collaboration with BiZZdesign, the Open Group, the Association of Enterprise Architects (AEA), and the Nederlands Architectuur Forum (NAF) about 10.000

possible participants are reached. There is a response rate of 3.19% but not all the responses were complete. The final sample includes 175 fully completed responses. The quality of the questionnaire is determined by considering the reliability, the validity, and the research ethics.

The data from the questionnaire is analysed to test the research model and the related hypotheses. The results reveal that the proposed relationships are positive and significant. The "indicators of strategic alignment" has the weakest relationship with strategic alignment while "organisational capabilities" has the strongest relationship. Consequently, the four related hypotheses are accepted. The analysed data provides some interesting findings which are reviewed and discussed. Only a few organisations experience a form of strategic alignment while a large part of the organisations experience problems during both development and implementation. More organisations experience problems during strategy implementation than during strategy development. In general managers are more optimistic about the problems experienced during the strategy process than the other function groups. Many organisations fail to involve the interests of the majority of the organisation during the strategy process. Program and Project management and IT were less involved during development than during implementation. Only a small part of the organisations use strategy techniques frequently to support the strategy process; most of the organisations use SWOT analysis or a business case. The most significant finding is the identification of the five variables with the largest negative influence on strategic alignment. These variables are: the impact of the strategy on the employees is not known; priorities regarding reaching strategic goal(s) are conflicting; long-term goals are unsuccessfully translated into short-term objectives; the majority of the organisation does not understand the strategy; and employees have no understanding of the expected actions.

There are more findings described in the research, however the most significant finding provides an answer on the main research question and therefore a solution to the research problem. The reasons why organisations fail to reach strategic alignment is because of the mentioned variables negatively influencing strategic alignment. If an organisation transforms these negative influences into positive influences a form of strategic alignment is reached.

The ***second research*** on assessing strategic alternatives can be found in **Part II** of this paper. A strategy should increase or maximise the shareholder value of the organisation; a strategy that does not create value is unacceptable and pointless. During strategic decision making organisations should compare strategic alternatives based on the performance outcome, which is determined by the return and risk. A trade-off between the return and risk determines whether a strategic alternative creates value for the organisation. In scientific literature the importance of making the trade-off is acknowledged; however, a practical application of a trade-off between return and risk is not provided. The addressed problem is that organisations make poorly informed strategic choices since the expected return and associated risk of strategic alternatives are not estimated in the strategic decision making process; they might waste time, effort and resources when implementing a strategic alternative which does not create value. The main research question is as follows:

> *How can strategic alternatives be assessed based on an estimation of the expected return and the associated risk to support strategic decision making?*

In this research a method is developed as a solution to the mentioned problem. The research strategy of this research is the design science research methodology. A theoretical framework is used to describe how existing literature is gathered and critically reviewed. The information from the literature review will be used to develop a method for assessing strategic alternatives

based on expected return and associated risk. With the use of the literature the proposed method is designed and developed. The method consists of two phases.

The *first phase* is estimating the expected return of strategic alternatives. The first step of this phase is the submission of the required accounting information. Accounting information of the current period is required to establish a base year for the calculations. The second step is an automatic calculation of the free cash flow of the base year. The calculation verifies that the accounting information is correctly submitted. The free cash flow information is used in calculations of expected return and associated risk. The third step is about predicting the changes for the variables influenced by the strategic alternatives. Strategic alternatives influence four main variables: sales volume, price, production cost, and investment outlay. Intermediate calculations can be made for the prediction period of the net profits, free cash flows, cumulative cash flows, discounted free cash flows, and discounted cumulative cash flows. The last step is the displaying expected return output through six methods: the net present value (NPV), the internal rate of return (IRR), the profitability index (PI), the discounted payback period, the accounting rate of return (ARR), and the payback period. The alternatives can be compared by their expected return to show which one is most preferable.

The *second phase* is about the estimation of the associated risk influencing the expected return of strategic alternatives. Sensitivity analysis is used to determine the sensitivity of the expected return to changes in the predicted sales volume rate, the price rate, and the production cost rate. The first step is to submit the necessary information for the sensitivity analysis. A range has to be set for the possible changes in each variable which shows the worst-case scenario and best-case scenario for each variable. The second step is the intermediate calculations of the expected return for each change in a variable within the range while holding the other variables constant. The last step is the sensitivity analysis output which shows the sensitivity of strategic alternatives to changes in each of the variables. Monte Carlo simulation creates thousands of scenarios in which all three variables are changed simultaneously and randomly; the expected return for each scenario is calculated. The first step is determining the boundaries of the simulation by setting a range with a worst-case and best-case scenario. The second step is the intermediate calculations made by running the 10.000 scenarios; changing the three variables randomly. The last step is Monte Carlo simulation output; from the scenarios can be found what the chance is on a negative outcome for a strategic alternative and there can be determined what the most likely outcome will be.

The developed method is demonstrated through the use of a case study in which the functionality and usability are explored. For the fictitious PRO-FIT organisation the strategic alternatives are assessed based on the expected return and associated risk. An Excel file is used to make the necessary calculations. Problems or ambiguities identified during the demonstration are resolved. The method is additionally evaluated through data from the Strategic Alignment survey and through in-depth interviews with experts. A section about estimating return and risk is included in the questionnaire and the resulting data is used to evaluate the underlying assumptions of the method. The findings suggest that most of the organisations do not evaluate return and risk frequently but they are willing to evaluate them. In-depth interviews with experts about the developed method test the reasoning behind the development and the functionality of the method. The remarks are considered and where necessary adjustments are made.

Acknowledgements

I would like to express my gratitude to several people who supported me during the period of writing this master thesis. Especially during the last few months their support was essential for completing the thesis. Without their support it would have been much more difficult.

As a start I want to thank my supervisors from the University of Twente for providing the academically guidance. The remarks, suggestions and recommendations made by Henk Kroon and Maria Iacob supported the construction of this research paper. Although the schedules were demanding both of you took the time to review what is done and provided insightful feedback. Thanks to your guidance the quality of my work improved.

I also want to thank my supervisor from BiZZdesign, Adina Aldea. Our weekly meetings kept me on the right track and ensured that progress was made. I want to thank you for taking the time to think together with me on several aspects and problems. It is unfortunate that you did not see the end result and I hope that you will be satisfied with the outcome. Even though Henry Franken was not my official supervisor his insightful remarks and our meetings did support the development of this paper. Especially during the absence of Adina some direction and guidance was needed. Therefore I want to thank you Henry for your time and advises.

Naturally, I want to thank my fellow graduate students at BiZZdesign. They were always prepared to provide a listening ear, engage into discussions or give solid advices. Thanks to you my time at BiZZdesign was more than only reading and writing but also about having some fun. I want to thank you for making my time at BiZZdesign unforgettable.

Of course, I also want to thank my family and friends. Especially during the last period of writing the thesis, when the pressure was getting high, your reassurances helped me through these months. You were all a great support to me during the whole process of writing the thesis. Dennis, thank you for all your support in everything I do and for listening to all my impressions and concerns.

As last, this research would not have been possible without the participation of the respondents on the Strategic Alignment survey and the participants of the in-depth interviews. My gratitude goes out to the willingness of these respondents and participants to use their experienced knowledge to disclose information about themselves and their organisations.

Background of BiZZdesign

BiZZdesign is a fast growing organisation that is founded in 2001 in the Netherlands. BiZZdesign is a spin-off company of a large research project called Testbed. The project was originally developed by the Telematica Institute together with the Dutch Pension Fund APG, the Dutch Internal Revenue Service, IBM, the ING Group and Novay. Within this project a model based virtual environment was created to test changing business processes in (large) organisations. Nowadays, BiZZdesign is one of the leading suppliers in the area of Enterprise Architecture and Business Process Modeling. The company has more than 100 employees worldwide and has an increasing number of international sales and support offices. BiZZdesign has also an excellent reputation worldwide in the field of Business Model Management, Lean Management, and Governance, Risk and Compliance.

Professional models and structured methods which could be used to realise business process improvement in a controlled and manageable way were developed by Testbed. The project also developed a business modelling language, which is a graphical language that can be used for business process and organisation modelling. BiZZdesign continued with these methods and tools and made them ready for the market. These tools are now known as BiZZdesigner methods and tools to the international market. BiZZdesign has several tools which are used for consultancy purposes or to support trainings like Architect, TOGAF, BiZZdesigner, the Decision Modeler, Business Model Canvas Module, LeanCoach, GripManager and InSite.

BiZZdesign has a wide range of customers; the company is working with customers in sectors such as transport and logistics, education, industry, health care, finance and insurance, government, utilities, media, public institutes, and retail. The headquarters of BiZZdesign is established in Amersfoort and Enschede. The company has also offices in North America, the United Kingdom, Germany, France, Belgium, and Central and Eastern Europe. The company has also strong partnerships with other consultancy firms, training institutes, and service providers. BiZZdesign is partners with for instance Neodata, LOGON, Process Sphere, Unycorp, Novay, Mendix, and Ingenia.

On the Gartner Magic Quadrant BiZZdesign is positioned as a Visionary. Previously BiZZdesign had a Leaders position. Gartner Inc. is an information technology research and advisory company that has developed the Gartner Magic Quadrant in order to assess the positions of competitors in a market. Organisations are judged by two criteria: the ability to execute and the completeness of vision. Leaders on the Gartner Magic Quadrant execute well against their current vision and are executing their vision well. Visionaries understand where the market is heading or have a vision for change on the market, but do not yet execute well.

BiZZdesign is an inventive and innovative business design company which helps organisations to (re)design, improve and implement their businesses more effectively. A structured model based approach is maintained to change businesses without risk and high costs. BiZZdesign uses an integrated approach which consists of user-friendly tools, best practice models and methods, effective training, and dedicated consultants. BiZZdesign supports organisations to define their strategy, to get insight, to design or redesign, and to improve organisations. The goal for BiZZdesign is to help organisations to get grip on the change around them and the complex business reality. BiZZdesign creates actual agility and delivers visible results. BiZZdesign puts continuous effort in research and development in order to improve the integrated approach. The employees of the client of BiZZdesign are trained trying to impart the knowledge BiZZdesign has to them.

Part I

A Survey into the Strategic Alignment Efforts and Experiences of Organisations

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1. Problem formulation and research motivation

"Oad is too late with new strategy" is one of the headlines that indicate the situation of many organisations nowadays. Oad, a family business and tour operator that is widely known in the Netherlands, has gone bankrupt in September 2013. Although the company has announced a planned change in strategy it was too late and Oad had to file for bankruptcy. This is an example that shows the importance of strategy in a dynamic and constantly changing environment. It becomes increasingly important for organisations to manage and survive change in an environment where competition and globalisation of markets is intensifying (Amagoh, 2008). Organisations have to use change practises such as strategic change, processes redesign and restructuring in order to be more flexible in a dynamic and fast changing environment. They need to reposition when facing changing competitive forces, therefore strategies need to be developed or adjusted. A business strategy determines the decisions and course of action that businesses take to achieve competitive advantage (Slater, Olson, & Hult, 2010). Strategic change can be defined as a manner of changing the objectives and vision of the company in order to obtain greater success (Naghibi & Baban, 2011). The first step to achieve strategic change is to formulate or develop a strategy, so to establish strategic thinking. The second step is to actually implement the developed strategy.

1.1. Problem formulation

Even when an organisation is in time with developing and implementing a strategy it is not a guarantee for success. Formulating a consistent strategy for an organisation is a daunting task, making that strategy work is even more difficult (Li, Guohui, & Eppler, 2010). The real struggle of strategic change is to implement the developed strategy. There is a need to align the strategic thinking with strategy implementation because of the significant difficulties that arise during the implementation process. An Economist Intelligence Unit survey from 2004 about the subject strategy execution shows that 57% of the researched organisations failed when trying to execute strategic initiatives. Kaplan and Norton (2005) have found that 67% of the researched organisations had departmental strategies, like HR and IT strategies, which did not reflect the business strategy. In 95% of the organisations the employees are unaware of, or do not understand, the strategy (Kaplan & Norton, 2005). PricewaterhouseCoopers (PwC) conducted the 17th annual Global CEO Survey in which 1,344 CEOs in 68 countries are questioned on the topic of closing the gap between strategy and execution (PwC, 2014). One of the findings is that only 54% of organisations are satisfied with their ability to execute on their strategic vision. Another finding shows that 54% believe their strategy has been sufficiently translated into clear actions that will achieve their objectives.

Organisations obviously struggle with strategy development and strategy implementation and are still far away from reaching strategic alignment. To resolve these difficulties for organisations and to support them in their strategic alignment efforts many methods, techniques, and models are created. There are models that could be used to develop a strategy for an organisation, models that provide a guideline to implement a strategy, and models that support strategic alignment. However, it can be time consuming to apply each of these models individually and analyse them separately. Aldea, Iacob, Quartel and Franken (2013) have developed a method that can align strategic thinking with strategy implementation. This method is an integrated approach to analyse, implement and evaluate a strategy. It provides a guideline for developing a strategy in such a way that it aligns business with IT/IS and therefore makes strategy implementation possible. In this method nine phases can be followed to successfully align strategic thinking with strategy implementation.

The model from Aldea et al. (2013) is an improvement to the current strategic alignment literature. The method is a guideline for formulating and developing a strategy and for implementing it in such a way that the business and IT are aligned. However, even though this method is an improved technique to align strategic thinking with strategy implementation, it still has some limitations. One limitation of the developed method is that there is little recent information about the efforts and experiences of organisations regarding strategic alignment. There is little understanding about the pains limiting strategic alignment and the gains enabling strategic alignment. Consequently, the authors do not know whether organisations would find such a method useful and whether they would like to use it. This limitation shows the necessity for a research into strategic alignment and the variables influencing strategic alignment. Creating understanding about the reasons behind difficulties in developing and implementing a strategy is valuable for every organisation. When there is no knowledge about how organisations move from strategy development to strategy implementation it is difficult to determine why strategic change efforts fail.

Accordingly, without knowledge about the strategic alignment efforts and experiences of organisations it is challenging to see why the organisations experience difficulties when trying to reach strategic alignment. It is not certain that the developed methods, techniques or models address the problems experienced by organisations. Information needs to be gathered to determine what organisations actually need in a strategy method, technique or model. From an assessment of the strategic alignment efforts and experiences there will be all kind of information gathered which might be interesting. However, the main focus is on determining why organisations fail to successfully develop and implement strategies. There should be knowledge about which factors and variables influence the strategic alignment efforts of organisations. These factors could limit or enable the organisations in reaching strategic alignment, and are not known until so far.

1.1.1. Problem statement

In the previous paragraph is determined that there is a lack of recent information about the way organisations move from strategy development to strategy implementation, and about their strategic alignment efforts and experiences. Since many organisations fail at developing or implementing their strategies successfully this information and knowledge can be helpful. It could help to understand the reasons behind the difficulties and struggles in reaching strategic alignment. Consequently, the problem statement of this study is as follows:

> *Without an analysis of the efforts and experiences of organisations regarding strategic alignment there is no way to tell what is causing organisations to fail in developing and implementing their strategies.*

1.2. Research motivation

With the research problem identified and therefore the reasons behind this research established, it is necessary to determine the research objectives. The research objectives show which purposes this research hopes to fulfil, in addition on providing a solution for the problem statement. The following step is to formulate the research questions of this research which are a guideline for provide a solution on the problem statement. The last part of the research motivation is the research approach which shows how the research is constructed and what logic and structure is followed.

1.2.1. Research objectives

The main research objective is to create understanding about the strategic alignment efforts and experiences of organisations to be able to identify the reasons behind the failure in developing and implementing a strategy. This main objective can be sub-divided into several smaller objectives which can be better managed within this research. The sub-objectives are formulated as follows:

- Create understanding about the strategy process and about strategic alignment.
- Identifying the most important variables influencing strategy development, strategy implementation, and strategic alignment.
- Distinguish which variables have a positive effect (enablers) on strategic alignment and which variables have a negative effect (constraints) on strategic alignment.
- Create understanding about the efforts and experiences of organisations regarding strategic alignment.
    - Create understanding the way organisations move from strategy development to strategy implementation (effort).
    - Create understanding the experiences of organisations regarding the variables influencing strategic alignment (experiences).
- Create understanding about why organisations struggle or experience difficulties with strategic alignment.

1.2.2. Research questions

To provide a solution to the problem statement and to be able to examine the research objectives a research question is formulated. This research question will be the centre of the research, and is formulated as follows:

> *Why do organisations fail to develop and implement strategies successfully, thus fail to reach strategic alignment, and what do organisations have to improve to reach strategic alignment?*

There are sub-research questions formulated to provide a guideline for the research. The answers on these sub-research questions contribute to provide an answer on the main research question. The sub-research questions are formulated as follows:

- What does strategic alignment means for organisations?
- Which variables have a positive influence (enablers) on reaching strategic alignment?
- Which variables have a negative influence (constraints) on reaching strategic alignment?
- What are the efforts and experiences of organisations regarding reaching strategic alignment?
- Why do organisations struggle or experience difficulties when trying to reach strategic alignment?

1.2.3. Research approach

The goal of this research is to get a better understanding about strategic alignment and the variables influencing strategic alignment. Especially, knowledge about how organisations move from strategy development to strategy implementation is required. To understand strategic alignment it is needed to examine whether organisations experience difficulties during strategy development or implementation. Consequently, it is necessary to determine and analyse the organisations' experiences and efforts regarding strategic alignment to get a

better understanding. Enhanced understanding about strategic alignment is required because organisations often fail to develop and implement their strategies. The research project exists of two parts: gathering of information from existing literature and gathering information from observations. There are two research approaches which can be used to design this research project: the deductive approach and the inductive approach (Saunders, Lewis and Thornhill, 2009). The deductive approach shows that theories can be tested by collecting observations. First a theory is developed, such as causal relationships between variables, which is then tested by making observations. The inductive approach works the other way around and shows that generalisations can be made from collecting observations (Babbie, 2010). The purpose of the inductive approach is to understand the nature of the problem by collecting data about the problem and forming a theory from these observations. Essentially, this research has an inductive approach since understanding is required about strategic alignment and the purpose is to form a theory on the constraints and enablers of strategic alignment. However, since there is much literature about certain variables influencing strategic alignment the deductive approach also applies. From the literature a theory is formed about which variables are influencing strategic alignment, and this theory is tested by collecting observations. A research model can be created based on the information from the literature and hypotheses are created to test the proposed relationships. These hypotheses are tested with the use of observations. Figure 1 shows the overview of the structure of this research.

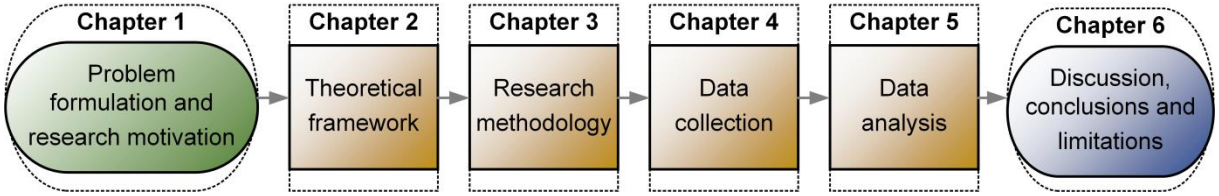


Figure 1 - Overview of the structure of this research

The first chapter provides the context for this research. The reasons for conducting the research are described; the problems are identified and the required solutions are defined. The objectives are formulated to establish the aim of the research. Research questions are developed to provide a guideline for reaching the needed solutions. The theoretical framework can be found in the second chapter. The theoretical framework provides the needed information and theories, and therefore supports the gathering of the observations. With the use of the literature the causal model for the research and the related hypotheses can be created and formulated. This causal model and the hypotheses can be tested with the use of observations. How the observations are gathered and how the causal model is tested is described in the research methodology. The third chapter describes the research methodology. In the research methodology is defined what kind of research this study is, what the units of analysis are, why the survey research is selected for gathering the observations, and which data collection method is used for the survey research. When the research methodology is established the data can be collected. First, the questionnaire is pre-tested to see whether the construction is sufficient for making a proper data analysis. When the questionnaire is ready for use there is a description of how the actual sample is selected and reached. The quality of the questionnaire is kept in mind; therefore the reliability, validity and research ethics of the questionnaire are mentioned. The last step of chapter four is a description of the demographics of the respondents like the individual characteristics and the organisational characteristics. The fifth chapter shows how the data is analysed to test the causal model, and thus the hypotheses of this research. There are some additional findings mentioned in this chapter which might be interesting or remarkable. These findings from the data analysis are discussed in the last chapter of this research. In this discussion the findings and the possible reasons

behind these findings are described. In this last chapter conclusions are described which provide answers for the remaining sub-research questions and for the main research question. This last chapter is also used to mention what the limitations of the research are and to give recommendations for future research.

1.3. Research contribution

This research is a combination of a scientific research with a social edge since it is conducted for the organisation BiZZdesign. Therefore this research has a scientific as well as a social contribution, which are explained in the following sub-paragraphs.

1.3.1. Scientific contribution

Even though strategic alignment is a currently relevant subject it remains a vague concept to the organisations. There are many definitions and much is written about what strategic alignment could or should do for organisations. However, when examining what actually limits or enables organisations to reach strategic alignment a boundary is reached. There is literature to be found about what limits strategic planning/development or what limits strategy implementation/execution. Nevertheless, there is not much literature found about what limits or enables strategic alignment as a whole. Some scientific journals that do review strategic alignment are outdated or focus too much on the technological side of strategic alignment. Most literature only focuses on strategic alignment being the link between business and IT while this research sees strategic alignment as something broader in which the link between business and IT plays a role.

Another gap in the scientific literature is the aspect of analysing actual experiences and efforts towards reaching strategic alignment. The literature that is found about strategic alignment is mainly about theoretical ideas and assumptions. There is not much information about how organisations try to reach strategic alignment and what actually limits them. Therefore, with this research a contribution is made to the scientific literature by providing a survey into the efforts and experiences of organisations regarding strategic alignment. The goal is to find which variables actually constraint strategic alignment. Theoretical knowledge is in this case supplemented with information from the practical experiences, something what is in the literature not found.

1.3.2. Social contribution

Next to the scientific contribution of this research there is also an environmental contribution. More and more organisations are interested in managing their strategic changes and supporting the strategy process. Strategies could in the current environment make a difference between the failure and the success of an organisation. Many tools, techniques, models, and methods can be used to support organisations in the strategy development and implementation process. BiZZdesign has also developed a model-based approach for aligning strategic thinking with strategy implementation. However, without knowledge about strategic alignment and about the constraints limiting strategic alignment it is difficult to see whether this model addresses the right solution. The information resulting from this research can be used by BiZZdesign to make sure that the model addresses the right problems and offers the right solution. Others can also benefit from the knowledge gathered in this research since a White Paper is going to be published in which the main findings are described. Hopefully all kind of organisations can learn from these findings.

2. Theoretical framework

This paper uses the theoretical framework to show how literature is gathered and analysed to get a better understanding about the subject and concepts of the research, and to provide the foundation for the collection of observations. First, the methodology of the theoretical framework is described, explaining how literature is sought and used. Second, the literature is critically reviewed to develop theories and ideas for continuing the research.

2.1. Methodology of theoretical framework

Since this research has a deductive approach it is necessary to develop a theoretical or conceptual framework which can be tested by using data (Saunders et al., 2009). Literature will help to identify theories and ideas which are tested with the use of observations. A literature review is a description and critical analysis of what other authors have written. However, the purpose of this literature review is not to provide a summary on everything that is written about strategic alignment but to review the most relevant and significant research about strategic alignment. Reviewing literature about strategic alignment will provide the foundation of this research and helps to develop better understanding and insights about the subject. In the literature review information about strategic alignment and subjects close to strategic alignment are critically reviewed.

The literature that is gathered is mostly English and only when it is absolutely relevant Dutch literature is included. There is literature sought on the subject area of strategic alignment and strategy. The main focus is on including the newest literature on the subject, thus from the last ten years. However, when literature is older than ten years but undeniably relevant it is included in the literature review. There are several sources of literature used in the literature review including primary literature such as White Papers, and secondary literature such as books and journals. Some key words are used when searching for literature such as strategic alignment, strategy development, strategy implementation, strategic thinking, strategic planning, strategy execution, and business-IT alignment. Those key words are used to search in search engines, directories, and bibliographies.

2.2. Literature review strategic alignment

The literature is critically reviewed in two different ways. Initially, basic knowledge about strategic alignment is sought. Several definitions of strategic alignment are studied to understand strategic alignment as a concept. Secondly, strategic alignment is reviewed as a process influenced by numerous variables. Those variables are identified and literature is compared to see which variables are acknowledged most frequently.

2.2.1. Strategic alignment

To be able to understand strategic alignment as a concept it is important to start with the beginning. The literature review is started by studying “strategy”. Several definitions of strategy are compared to comprehend the subject of this research. Next, the strategy process is examined since strategies do not form out of thin air but are formed according to a certain process. When there is understanding about strategy and the strategy process it is possible to examine the concept of strategic alignment. To obtain knowledge about strategic alignment multiple definitions are found and compared. In the last part of this paragraph several findings from the literature are combined into indicators for strategic alignment. These indicators can be used to assess whether an organisation reaches strategic alignment. With the use of this information the following sub-research question is answered at the end of this paragraph:

- What does strategic alignment means for organisations?

2.2.1.1. Strategy

The first step in understanding strategic alignment is by starting to understand strategy as a concept. Balogun (2001) makes a statement when stating that the one thing that is certain in the current environment is that there will be more organisational change, instead of less. The competition and globalisation of markets is intensifying and therefore it becomes increasingly important for organisations to manage and survive change (Amagoh, 2008). Organisations need to reposition when they face changing competitive forces, therefore strategies need to be developed or adjusted. Mintzberg, Ahlstrand and Lampel (2009) recognise that defining strategy is a complex task since multiple definitions apply to the word strategy. Most of the people would say that a strategy is a plan. Strategy is usually defined as a direction, a guide or course of action into the future, or a path to get from here to there. However, a strategy is also a pattern which shows consistency in behaviour over time. Both of the definitions are valid, there is however the distinction between the *intended strategy* which consists of plans for the future and the *realised strategy* which consists of patterns from the past. A strategy can be defined as deliberate when the intended strategy is fully realised. In practice it is almost impossible to realise intended strategies completely. This means that a strategy is often (partially) emergent which means that there is a pattern realised which was not expressly intended. Strategies are not always formulated but sometimes form themselves. To some people strategy is a position like the locating of products in markets and to some people strategy is a perspective like a way of doing things. In reality these definitions are combined which indicates that a strategy is a position as well as a perspective. The last definition of strategy by Mintzberg et al., (2009) is that a strategy is a ploy, which is a specific manoeuvre to outwit an opponent or competitor. A strategy is usually formed to gain competitive advantage over others. Grünig and Kühn (2005) mention that an (intended) strategy has the following characteristics:

- It presents long-term guidelines.
- It is relevant for the organisation as a whole or for important parts of the organisation.
- It is normally determined by the management.
- And, it should guarantee the permanent accomplishment of the organisation's overriding goals and objectives.

From the mentioned definitions an overall definition of strategy is developed. A strategy determined by management consists of plans for the future and patterns from the past, it result in a position and a perspective for the whole or important parts of the organisation, it is a combination of deliberate realised intents and emergent unintended patterns, and it is about gaining competitive advantage on competitors. In short, a strategy is about moving from a current situation to a future desired state to reach a desired outcome.

2.2.1.2. The strategy process

A strategy does not appear out of thin air but it is rather formed through a strategy process or through strategic management which leads to the existence of a strategy. According to Mintzberg et al. (2009) the strategy process is best captured by ten schools:

The Design School:	Strategy formation as a process of *conception*
The Planning School:	Strategy formation as a *formal* process
The Positioning School:	Strategy formation as an *analytical* process
The Entrepreneurial School:	Strategy formation as a *visionary* process
The Cognitive School:	Strategy formation as a *mental* process
The Leaning School:	Strategy formation as an *emergent* process
The Power School:	Strategy formation as a process of *negotiation*
The Cultural School:	Strategy formation as a *collective* process

The Environmental School:	Strategy formation as a *reactive* process
The Configuration School:	Strategy formation as a process of *transformation*

The first three schools are concerned with how strategies should be formulated. The six schools that follow consider specific aspects of the process of strategy formation; they describe how strategies do in fact get made. The last school combines the other schools and is called configuration. In this school various elements from the previous schools are combined to achieve strategic change (Mintzberg et al., 2009). Grünig and Kühn (2005) recognise three phases the strategy process, which they call strategic management. Strategic management consists of: (1) strategic planning, (2) the implementation of strategies, and (3) strategic control. Strategic planning sets out long-term goals and provides a guideline for what is necessary in terms of actions and resources. This strategic planning phase provides a clear direction and foundation for the implementation of a strategy. Strategy implementation refers to the realisation of strategies within the organisation. Strategic control concerns three elements: strategic realisation checking, strategic monitoring and strategic scanning. It is about making sure that strategic goals and plans are realised.

Consequently, from the information provided by Mintzberg et al. (2009) and Grünig and Kühn (2005) can be concluded that the strategy process consist of three phases. The first phase is strategic planning where a strategy is formulated and developed. The second phase is strategy formation and is about the implementation of strategies. The last phase is the configuration which makes sure that there is strategic control. In this research the first phase is referred to as strategy development, the second phase is referred to as strategy implementation, and the third phase is referred to a strategic control. These three phases can be seen in Figure 2 and are going to be explored in this literature review.

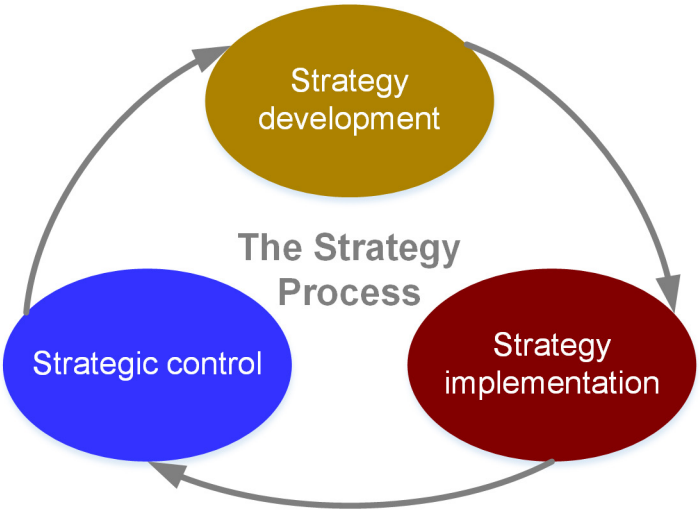


Figure 2 - The strategy process

The first phase of strategy process is the strategy development phase. Strategic planning, strategy formulation and strategy development are three terms which are used interchangeably. In this paper there will be no distinction between the three terms. Strategy development is the most used term because it clearly displays the purpose of the phase, and will therefore also be used in this research. Strategy development can be defined as a way of solving strategic problems that combines a rational approach with a creative and divergent thought process to find alternative ways of competing and providing customer value (Moon, 2013). According to Grünig and Kühn (2005) strategy development is a systematic process in which strategies are produced. Strategy development results in long-term guidelines and considers the whole organisation or important parts of the organisation. In short, strategy development is about formulating what should be changed to evolve from the current situation to the desired future state. Consequently, long-term goals are set up and a rough guide about the necessary actions and resources is provided (Grünig and Kühn, 2005).

This first phase provides a clear direction and foundation for the second phase which is strategy implementation (Grünig and Kühn, 2005). Li et al. (2010) define strategy implementation as a dynamic, iterative and complex process, which is comprised of a series of decisions and activities by managers and employees to turn strategic plans into reality in order to achieve strategic objectives. Strategy implementation is about translating the long-term strategic plans and goals into clear short-term actions and operation to be able to execute the strategy. In short, strategy implementation is about realising the developed strategy throughout the organisation. Strategy implementation must not be confused with strategy execution. Strategy execution is a part of strategy implementation in which the necessary actions and operations are actually performed. Strategy implementation is more than only executing actions, like the translation of general strategic goals into more specific objectives.

The last phase is the strategic control phase in which an evaluation is made of the strategy process. Strategic control has two functions: providing feedback on how strategies are realised and checking whether assumptions underlying strategic plans check with the reality (Grünig and Kühn, 2005). Consequently, on one side strategic control is about making sure that the developed strategy corresponds with what is implemented. On the other side strategic control is about the fit of the developed strategy with the reality, thus the organisational capabilities and environment.

These three phases form together the strategy process but do not take place consecutively; there is a considerable overlap between the three phases (Grünig and Kühn, 2005). Especially, between strategy development and strategic control is an overlap because often the reality is considered during strategy development. Strategy development and strategy implementation are critical cornerstones in building a capable organisation. Noble (1999b) recognises that strategy development and strategy implementation are intertwined processes which both need be successful for superior firm performance. Too often, though, the plans which are the result of strategy development never come to the expected results.

2.2.1.3. Strategic alignment

Strategic alignment is a complex concept, with many different definitions, which is frequently researched. Henderson and Venkatraman (1993) can be seen as the founders of the first strategic alignment frameworks. They recognised that alignment between the business and information technology (IT) strategies influence the ability of an organisation to realise value. According to Henderson and Venkatraman (1993), strategic alignment is based on two fundamental assumptions. First, economic performance is related to the ability of management to create strategic fit between the position of an organisation in the competitive product-market arena and the design of an appropriate administrative structure to support its execution. Second, strategic fit is inherently dynamic. Strategic alignment is a process of continuous adaptation and change. Strategic choices will lead to imitation by competitors which will make subsequent responses necessary in the form of other strategic choices.

The first assumption of Henderson and Venkatraman (1993) is often discussed and researched. Some authors just focus on strategic alignment as being the alignment between the business and IT. El Mekawy, Rusu and Ahmed (2009) descibe that business-IT alignment occurs when the functions of IT are developed in line with the business to achieve business objectives. IT is deployed to raise the performance of business to achieve business goals. Luftman (2003) also describes strategic alignment as alignment between business and IT. According to Luftman (2003), alignment addresses both how IT is in harmony with the business and how the business is in harmony with IT. Strategic alignment is the degree to

which the IT mission, objectives, and plans support and are supported by the business mission, objectives, and plans (Damiani, Mulazzani, Russo, & Succi, 2008). The importance of the fit between the IT strategy and the organisational strategy is explained by Henderson and Venkatraman (1993). The ability to leverage technology is crucial for organisations to differentiate its operations from competitors. Advantage is obtained through the capability of an organisation to exploit the IT functionality on a continuous basis. According to Bergeron, Raymond and Rivard (2004), the information-processing requirements of an organisation are tarnslated into an IT strategy, while the capacity to information-processing is reflected in the IT structure. The underlying thought of business-IT alignment is that an organisation cannot create value when a business strategy is formulated without considering the existing information-processing capacity and requirements, or when the information-processing requirements does not follow the business strategy. An organisation has a better chance for success and profitability when it aligns IT with business strategies, goals, and needs (Avison, Jones, Powell, & Wilson, 2004). Consequently, strategic alignment requires understanding about not only the business but also about the IT. By only involving top management in strategy development and implementation the IT side might be overlooked. The interests of the majority of the organisation need to be considered to make a strategy work and to reach strategic alignment.

However, not every researcher put such a large emphasis on the role of IT in strategic alignment. Baker and Jones (2008) explain that the concept alignment comes from the idea that organisations should match, align or fit their organisational resources to the competitive context of the organisation. A more general definition describes alignment as the degree to which the needs, demands, goals, objectives and/or structure of one component are consistent with the needs, demands, goals, objectives and/or structure of another component (Baker & Jones, 2008). Bergeron et al. (2004) give a general description by explaining that strategic alignment indicates that organisational performance is the result of fit between two or more factors such as strategy, structure, technology, culture, and environment. The emphasis is on the alignment between organisational strategy and organisational structure. These authors recognise the role of multiple factors in strategic alignment. According to Bergeron et al. (2004), organisations seek to align the organisation with its environment and arrange resources to support that alignment. The organisational structure must be well suited to be able to support the execution of a strategy in a competitive environment. It is important to understand that even though business-IT plays an important role in strategic alignment, there are more elements influencing it. Baker and Jones (2008) describe that there are five types of alignment:

- ***Business alignment***: the organisation's structure and resources should support the strategic vision of the organisation. Therefore, it is about the fit between the organisational resources and the business strategy.
- ***IT alignment***: the IT resource deployment should be guided by the developed IT strategy. This means that the IT resources should support the IT strategy in order to execute the IT strategy.
- ***Contextual alignment***: organisational resources should match or be in line with the competitive context of the organisation. The competitive context exists of the environment of the organisation.
- ***Structural alignment***: the organisational resources and the IT resources should correspond with each other.
- ***Strategic alignment***: there should be a link between IT strategy and business strategy.

The second assumption of Henderson and Venkatraman (1993) is aknowledged by multiple authors. Staretgic alignment is a goal that can never be completely achieved. It is necessary to make frequent adjustments within the organisation to move towards strategic alignment (Baker & Jones, 2008). Luftman (2003) explains that achieving alignment is evolutionary and dynamic. Strategic alignment is not static but it is an ongoing process. For each strategic change in business it is necessary to reassess the appropriateness of business-IT alignment (El Mekawy, Rusu, & Ahmed, 2009).

In terms of the strategy process strategic alignment can be reached when strategy development and strategy implementation are seen as an intertwined and continuous process. Strategic alignment is dependent of how an organisation develops and implements strategies. A graphical representation can be found in Figure 3. When an organisation fails to develop or implement a strategy it is certain that there will be no strategic alignment. Successful strategy development is about creating a business strategy while taking the organisation's resources and capabilities into account. Not only is the business structure considered but also the fit with the IT structure. Successful strategy implementation is about translating the organisational strategy into a set of operational goals (Damiani et al., 2008). Thus operational goals and actions are formed according to the business strategy. The consequences of the business strategy for the IT strategy are recognised, while taking the IT structure into account. Basically, when strategic alignment is reached there are no problems or difficulties identified in the strategic control phase. When strategic alignment is reached the way a strategy is executed is in line with the business and IT structure and the assumptions underlying strategic plans, business and IT strategies, are in accord with the organisational context.

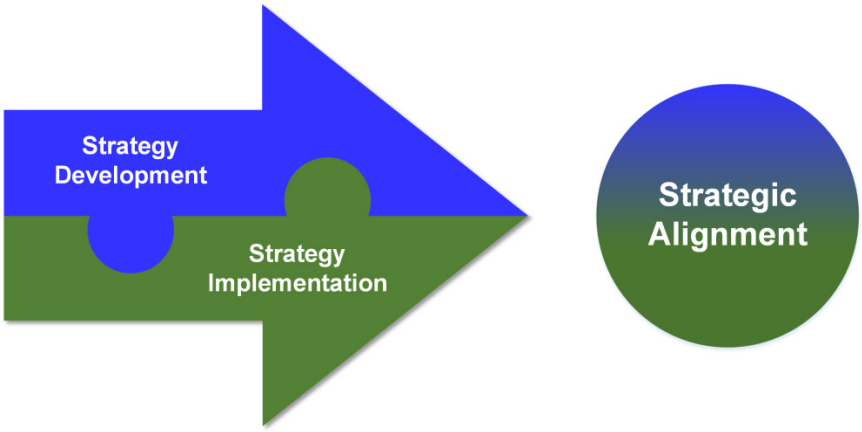


Figure 3 - Intertwined process of development and implementation for strategic alignment

Concluding, an overall definition is provided for strategic alignment based on all the defintions given by others. Strategic alignment is the ability to create strategic fit/synergy between the position of the organisation within the competitive environment and the design of the appropriate structure to support the execution, in such a way that a strategy is developed while considering the supporting structure (IT) and that operational goals and actions are in line with the overall strategy (business).

2.2.1.4. Determining and influencing strategic alignment

In the next paragraph there will be more detailed information about what influences strategic alignment. However, to determine whether there is strategic alignment some indicators can be used. As explained in the previous paragraph, it is crucial for strategic alignment to have successful strategy development and strategy implementation. Without either of them strategic alignment cannot be reached. For instance, when development of a strategy fails

there is no strategy to speak of, which leads to an inability to reach strategic alignment. Strategic alignment is an ideal state where ***strategies are successfully developed and implemented*** because of the fit between business and IT. These indicators can be used to determine whether an organisation has reached strategic alignment. If an organisation is successful at both developing and implementing a strategy then there is a certain level of strategic alignment. In Table 1 the two indicators for determining whether there is strategic alignment are displayed, together with the definitions of each indicator and the survey item.

Table 1 - The indicators for determining strategic alignment (STA)

Indicators for determining Strategic Alignment (STA)		
Indicator	**Definition**	**Item**
Successful development	The extent to which the development of a strategy is successful	STA1
Successful implementation	The extent to which the implementation of a strategy is successful	STA2

There are some additional indicators which directly influence whether an organisation reaches strategic alignment. These indicators influence strategic alignment directly since they are crucial for reaching strategic alignment. Strategic alignment is a continuous process which constantly has to be assessed. Strategic alignment can only be reached when strategy development and strategy implementation are seen as an intertwined and continuous process. An intertwined and continuous strategy process could lead to fewer problems identified in the strategic control phase which is an indication for strategic alignment. Therefore, when an organisation sees the ***strategy development and strategy implementation as one process*** it is more likely to reach strategic alignment.

One of the most important indicators for strategic alignment is whether there is a fit between the business and the IT. However, this indicator consists of several parts and is therefore split up into multiple indicators. A general indicator for the fit between business and IT is whether the ***interests of the entire organisation are represented*** during strategy development and strategy implementation. This gives an indication whether there is understanding about the business and about IT. Another indicator of the alignment between business and IT shows that during strategy development the ***organisation's resources and capabilities*** must be taken into consideration. The last indicator indicates that during strategy implementation the strategic ***plans need to be translated into actions***. Table 2 displays the indicators influencing strategic alignment, the definition of each indicator, and the survey item belonging to each indicator.

Table 2 - The indicators for measuring strategic alignment (STA)

Indicators for Strategic Alignment (STA)		
Indicator	**Definition**	**Item**
One process	The act of seeing strategy development and implementation as one process	STA3
Representing interests	The extent to which the organisation is represented during strategy development and implementation	STA4
Considering resources and capabilities	The act of considering the organisation's resources and capabilities during strategy development	STA5
Defining actions	The act of defining actions according to strategic plans during strategy implementation	STA6

2.2.1.5. Conclusion

With the use of this part of the literature review the first sub-research question, "*What does strategic alignment means for organisations?*", can be answered. Strategic alignment is an ideal state in which an organisation stands when it does not have any difficulties with either strategy development or strategy implementation. Strategic alignment is the ability to create strategic fit/synergy between the position of the organisation within the competitive environment and the design of the appropriate structure to support the execution. Strategic plans should be made while taking the organisation's capabilities and resources (IT) in mind and changes and actions should be established while keeping the strategic plans (business) in mind. It is an ongoing process and organisations have to consistently adapt and change to be able to reach some form of strategic alignment.

2.2.2. The variables influencing strategic alignment

Strategic alignment is influenced by several factors like strategy development, strategy implementation, fit between business and IT, organisational context, culture, and other factors. In the literature much information can be found about what influences strategic alignment. This paper does not only focus on the constraints of strategic alignment but also on the enablers of strategic alignment. With the use of this part of the literature review the following two research questions can be answered:

- Which variables have a positive influence (enablers) on reaching strategic alignment?
- Which variables have a negative influence (constraints) on reaching strategic alignment?

Between the ideal of strategic alignment and the reality of strategy development and strategy implementation lay many difficulties (Beer & Eisenstat, 2000). Many organisations fail to implement the developed strategy successfully within the organisation. Bradley et al. (2013) have found that two-thirds of the executives admit that their organisation struggle with the issue of strategic alignment. A strategy cannot be implemented successfully when the people with the most relevant jobs do not understand what needs to be changed, how to change it, and why to change it. Often, it is challenging to connect the future goals, for large changes over long time frames, to the present. Long-term goals and plans should be translated into short-term tangible goals which contribute in the long run to the long-term strategic goals. When organisations fail to set the proximate goals the results can be disappointing in the end (Bradley et al., 2013).

Bradley et al. (2013) give some examples of pitfalls or pains which may take place when trying to align strategic thinking with strategy implementation. There are many more pains which an organisation can experience during strategic alignment or implementation. These pitfalls or pains are the constraints for reaching strategic alignment. In the research of Alexander (1985) 93 private sector firms are surveyed to determine which implementation problems occurred most frequently when trying to implement strategic decisions. Alexander's (1985) top three findings are that 76% of the firms have the problem that implementation took more time than originally allocated, 74% had major problems surfacing during implementation that had not been identified beforehand, and 66% thought that coordination of implementation activities was not effective enough. While the research of Alexander (1985) is conducted quite some time ago, most of the problems described are still an issue nowadays. The more recent research of Hrebiniak (2006) shows quite some similarities with the research of Alexander (1985). Hrebiniak (2006) conducted two separate but interdependent studies into the obstacles to effective strategy implementation. While the first research was based on

observed strategic execution-related problems, the second research was an empirical study of implementation issues in which data was collected from 443 managers involved in strategy execution. In the second research Hrebiniak (2006) has conducted two surveys: one in collaboration with the Gartner Group Inc. and one with the use of Wharton executive education programs. From the Wharton-Gartner survey there are 243 complete and useable responses and from the Wharton executive education survey there are 200 responses. From the two surveys there are five obstacles to strategy implementation displayed in Table 3 in which the obstacle with the score of 1 is ranked as the topmost obstacle.

Table 3 - Top five obstacles to strategy execution (Hrebiniak, 2006)

	Rankings	
Obstacles	Wharton Executive Education Survey	Wharton-Gartner Survey
Inability to manage change effectively and overcome resistance to change	1	1
Poor or vague strategy	2	5
Not having guidelines or a model to guide strategy implementation efforts	2	-
Poor or inadequate information sharing among individuals/units responsible for strategy execution	4	2
Trying to execute a strategy that conflicts with the existing power structure	5	2

The studies of Alexander (1985) and Hrebiniak (2006) are a small part of all the literature about strategic alignment, strategy development or strategy implementation. Not all the literature will be explained into detail. In this paper similarities between different studies are sought to gather information about which variables are most frequently mentioned in the literature as a possible construct of strategic alignment. In addition to Alexander (1985) and Hrebiniak (2006) there are several authors who have researched the pains of strategic alignment. Steiner (1979) recognises the ten most important pitfalls, Beer and Eisenstat (2000) mention six silent killers, Corboy and Corrbui (2007) the seven deadly sins, Thompson and Martin (2012) the characteristics of fragmented organisations, Ali and Hadi (2012) factors affecting strategy implementation and Elquist LoRé (2012) also mention seven deadly sins.

Table 22, from Appendix A - Variables influencing strategic alignment, shows a summary of the most important findings from the mentioned authors. This summary and the findings from each author are used to make a ranking of which variables are most frequently identified as constraints, problems or pitfalls influencing strategic alignment. Table 4 shows the ranking of variables constraining strategic alignment, in this table a score is assigned to the variables to show whether the variable is mentioned or identified by the referred author(s). Three scores can be assigned to each variable:

- A score of 0 when the variable is not mentioned or identified at all by the author.
- A score of 1 when the variable is mentioned or identified as a variable which has a slight impact on strategic alignment.
- A score of 2 when the variable is mentioned or identified as the main variable influencing strategic alignment.

For each variable the scores of all the authors are added up to a total score for the variable. The higher the score the more frequently the variable is mentioned in the literature. This paper considers the variables with higher scores to have a more significant impact on strategic

alignment than the variables with the lower score. A variable with a high score has a large impact on strategic alignment since multiple studies have identified that variable as a problem or constraint which means that it is absolutely of importance. Consequently, from Table 4 can be seen which variables are constraining strategic alignment the most.

Table 4 - Ranking of the variables constraining strategic alignment according to literature

	Authors								
Variables constraining strategic alignment	Hrebiniak (2006)	Alexander (1985)	Corboy & Corrbui (2007)	Beer & Eisenstat (2000)	Steiner (1979)	Elquist LoRé (2012)	Thompson & Martin (2010)	Ali & Hadi (2012)	**Total score**
Management does not get involved in execution	2	0	2	1	2	1	0	2	**10**
Development is seen as separate from execution	2	0	2	0	2	0	0	0	**6**
Failure translating long-term strategic goal(s) into short-term objectives or actions	1	2	2	0	2	2	0	2	**11**
No fit between strategy and organisational structure (resources and capabilities)	1	0	0	0	0	0	0	2	**3**
Management involves too little people	2	0	2	0	2	2	0	0	**8**
Inadequate management	2	1	0	2	0	0	2	2	**9**
Management does not clarify strategic decisions	2	0	1	1	1	2	2	2	**11**
Poor or vague strategy	2	0	2	2	0	2	2	2	**12**
Conflicting priorities	0	2	0	2	2	0	2	0	**8**
Poor or inadequate communication	2	2	1	2	0	2	0	2	**11**
No understanding strategic plans	2	0	2	0	0	0	0	2	**6**
Unclear responsibility and accountability	2	2	2	0	0	0	0	0	**6**
The implications of strategy are not clear	1	0	0	0	0	0	0	0	**1**
Reluctance to change/resistance to strategic plans	2	2	2	0	2	0	2	2	**12**
Ineffective coordination within organisation	1	2	0	2	0	1	2	2	**10**
Competencies employees not sufficient	1	2	0	0	0	0	0	2	**5**
Monitoring and measuring strategic change is not adequate	1	2	2	0	2	0	2	2	**11**
Strategy is not supported by systems and processes	1	2	0	0	0	0	0	2	**5**
There is no understanding that a strategy requires resources	0	0	0	0	0	0	0	2	**2**
The contribution of each person is not recognised	0	0	0	0	0	0	0	0	**0**
Not all the activities/actions support strategy	1	0	0	0	0	1	0	0	**2**
Strategic plans are rigid	0	0	2	0	2	0	0	0	**4**
There is no collaboration to reach strategic goals	0	0	0	0	2	2	0	2	**6**

As already said, organisations who try to implement their formulated strategy fail frequently (Li, Guohui, & Eppler, 2010). It seems logical to suggest that in order to avoid failure in developing and implementing a strategy, and therefore in strategic alignment, an organisation

should take into account the above mentioned variables and turn them in something positive. Luftman, Papp and Brier (1999) also acknowledge this since they identify enablers of strategic alignment which are the opposite of the inhibitors of strategic alignment. Vagadia (2014) explains that an organisation has reached strategic alignment when the organisation is acting as a whole and remains aligned to the shared vision, to a common strategy and to personal goals, even when the organisation is evolving. In short, strategic alignment is about making sure that strategic thinking and strategy implementation are synced with each other and with the entire organisation.

There are many strategic alignment methods or models which help organisations to reach a state of strategic alignment, for instance the strategic alignment method (SAM) of Henderson and Venkatraman (1993), the strategic alignment maturity model (SAMM) by Luftman (2000) or the integrated architecture framework (IAF) by van 't Wout, Waage, Hartman, Stahlecker, and Hofman (2010). While these strategic alignment methods offer different perspectives on strategic alignment the overall statement is the same: for reaching strategic alignment there should be a fit between business and IT, and therefore between strategy development and strategy implementation. Most strategic alignment models just provide an explanation or summary of factors which should be taken into consideration by an organisation who wants to reach a state of strategic alignment. The model for strategic alignment developed by Aldea et al. (2013) provides a guideline for aligning strategic thinking with strategy implementation. This model is an integrated approach of connecting multiple methods to reach strategic alignment.

Luftman (2000) has made a strategic alignment maturity model in which several maturity categories are mentioned for determining the extent of strategic alignment. These categories give a suggestion on what organisations should focus when they want to align strategic thinking with strategy implementation. Luftman (2000) mentions several categories which could positively influence strategic alignment. In addition to Luftman's (2000) maturity categories other researchers have also identified variables positively influencing strategic alignment. Dobni (2003) mentions the 6 C's for creating a strategy implementation environment, Li et al. (2010) describe the nine factors influencing startegy implementation and Higgins (2005) has explored the 8 'S's of strategy execution. Even though these categories or factors seem to be different they reflect (mostly) the same topics which are also explained in the constraints above. Table 23, from Appendix A - Variables influencing strategic alignment, summarises all the variables mentioned by Dobni (2003), Vagadia (2014), Neilson, Martin and Powers (2008), Li et al. (2010), Higgins (2005) and Luftman (2000). Table 5 shows the main factors which lead to strategic alignment and whether they are mentioned by the referred author(s).

Table 5 shows, similar to Table 4, the ranking of variables enabling strategic alignment. In this table a score is assigned to the variables whether the variable is mentioned or identified by the referred author(s). The scoring is conducted on the same foundation as for the previous table and for each variable the scores for all the authors are added up to a total score for the variable. The higher the score the more frequently the variable is mentioned in the literature. Consequently, from Table 5 can be seen which variables are enabling or positively influencing strategic alignment.

Table 5 - Ranking of the variables enabling strategic alignment according literature

Variables enabling strategic alignment	Authors: Dobni (2003)	Li et al. (2010)	Higgins (2005)	Luftman (2000)	Vagadia (2014)	Neilson et al. (2008)	Total score
Management is involved in execution	0	2	0	2	2	2	**8**
Development and implementation are seen as one process	0	1	0	2	1	0	**4**
Strategic plans are translated into long-term plans and short-term goals	0	1	0	0	2	0	**3**
Fit between strategy and organisational structure	2	2	2	2	1	0	**9**
All employees are engaged in strategy process	1	0	0	0	2	0	**3**
Adequate management style	1	2	2	2	2	0	**9**
Management is able to motivate decisions	0	1	0	0	1	2	**4**
Clear defined strategy and strategic objectives	0	2	2	2	2	2	**10**
No conflicting priorities	0	2	0	2	2	0	**6**
Good (continuous) communication	2	2	0	2	2	2	**10**
There is understanding about the strategy	0	1	0	2	2	0	**5**
Clear defined responsibilities	0	2	0	0	2	2	**6**
Clear defined implications strategy	0	2	0	0	2	2	**6**
An aligned culture, readiness for change	2	2	2	2	2	2	**12**
Effective coordination of strategy within organisation	0	1	0	0	1	0	**2**
Employees have the right competencies	2	0	2	0	0	0	**4**
Monitoring and measuring the strategic progress	0	1	2	2	0	2	**7**
Systems and processes support strategy	0	2	2	0	0	0	**4**
Understanding that a strategy requires resources	0	0	2	2	2	0	**6**
Understand contribution of each person	2	1	0	0	2	2	**7**
All activities/actions support strategy	2	0	0	2	0	0	**4**
Plans are refined and adapted during implementation	0	0	0	0	0	0	**0**
There is collaboration to reach strategic goals	1	2	1	2	0	0	**6**

All the variables from above, inhibiting or enabling strategic alignment, can be assigned to three main variables. The three main variables are culture and shared beliefs, organisational capabilities, and communication.

2.2.2.1. Culture and shared beliefs

The first main variable influencing strategic alignment is culture and shared beliefs. This variable shows the importance of the organisation's culture and shared beliefs for developing and implementing a strategy. Dobni (2003) explains that there must be a fit between the culture, the strategy, and the context in which an organisation operates. In this paper the culture and shared beliefs of an organisation are about the mind-set within the organisation regarding strategy development, strategy implementation, and strategic alignment.

According to Vagadia (2014) there should be an aligned culture, people should fully buy into the necessity of the strategy. However, employees cannot fully support a strategy when there

is no common strategy. Without a strategy the direction of an organisation will be unclear and there will not be an aligned culture. ***A common strategic goal(s)*** is needed to give the strategy form and to make it possible to align the organisation's culture and shared beliefs.

However, even though a strategy exists it does not immediately mean that the entire organisation works towards that strategy. Every member of the organisation should work towards reaching the strategic goal(s), in one way or another. Therefore, the ***direction*** of the work of employees is important for creating an aligned culture. The collective thoughts and actions of employees should be aimed towards the strategic goal(s) (Dobni, 2003). Vagadia (2014) mentions that not only the projects within an organisation should be aligned but also the people within it. The strategy should be developed while engaging people across the organisation. All employees must be clear on the what, why, when and how of strategy.

Elquist LoRé (2012) mentions that departments often do not work together, which makes implementing a strategy extremely difficult. ***Collaboration*** between individual and departments is essential for creating a feeling of shared understanding and an aligned culture. Li et al. (2010) mentions that consensus and commitment are important for creating a strategy oriented organisation, and therefore collaboration within the organisation. Consensus is about creating understanding and about agreeing on the strategy, commitment is about supporting the designed strategy. Collaboration is, with a score of 6 on the ranking of the constraints, recognised as a constraint which has to be acknowledged but it is not one of the core constraints. The same applies for collaboration being an enabler of strategic alignment; collaboration is identified but not that important as the other factors with a score of 6.

According to Li et al., (2010) there is a need for strategic consensus, which means that there is shared understanding about strategic priorities. Vagadia (2014) mentions that having employees truly aligned on top priorities makes it possible to ensure that resources are being directed at the right opportunities. ***Priorities*** (individual or departmental) should not be conflicted in order to reach a culture for strategic alignment. When there are no conflicting priorities it could lead to strategic alignment. The variable "priorities" has a score of 6 on the ranking of enablers which means that this variable is not a significant enabler. Conflicting priorities are more often seen as a constraint to strategic alignment, having a score of 8 on the ranking of constraints.

One way of making employees understand their role within the strategic change process is to recognise the individual contribution for strategy development and strategy implementation. By appraising the individual performance an organisation can ***recognise the individual contribution***. The recognition of the individual contribution is seen as a reasonable important enabler of strategic alignment, with a score of 7 on the ranking of enablers. However, it is absolutely not seen as a constraint of strategic alignment since none of the authors mentioned it as a constraint.

Reluctance to change or to adapt to strategic plans is a killer of strategy implementation. Thompson and Marin (2010) recognise that there is often rigidity in the organisation which leads to a reluctance to change. According to Steiner (1979) management fails to create a climate in the company which is not resistant to planning or to change. ***Willingness to change*** is a crucial element for organisations implementing strategies. When there is reluctance to change within the organisation it might be difficult to implement a strategy. There is a strategic culture when there are collective thoughts and actions of employees towards the strategic orientation of the organisation (Higgins, 2005). With a score of 12 on the ranking of

constraints, reluctance to change is one of the most important restrictions of strategic alignment. Accordingly, with a score of 12 on the ranking of enablers, an aligned culture is the variable with the most positive influence on strategic alignment.

Ineffective ***coordination*** within the organisation often has to do with the collaboration between departments and/or people within the organisation. Beer and Eisenstat (2000) recognise that there is poor coordination across functions, department and borders. Management needs to coordinate strategic change throughout the organisation to create understanding between individuals and departments, and to make collaboration possible. Ineffective coordination is seen as a significant limitation to strategic alignment; it scores a 10 on the ranking of constraints. Surprisingly, effective coordination is not seen as an important enabler because it only has a score of 2 on the ranking of enablers.

In Table 6 the above mentioned indicators of culture and shared beliefs are listed together with the definition of each indicator and the survey item that belongs to the indicator.

Table 6 - The indicators for measuring the culture and shared beliefs (CSB)

Indicators for Culture and Shared Beliefs (CSB)		
Indicator	**Definition**	**Item**
Common strategic goal(s)	The presence of a common strategic goal(s)	CSB1
Direction	Whether the organisation works towards reaching strategic goal(s)	CSB2
Collaboration	The extent of collaboration within the organisation to reach strategic goal(s)	CSB3
Priorities	The extent to which priorities are conflicting or aligned regarding reaching strategic goal(s)	CSB4
Recognition individual contribution	The importance of individual contribution to strategy development and implementation is recognised	CSB5
Willingness to change	The extent of readiness and willingness to change within the organisation	CSB6
Coordination	The extent to which management coordinates strategic change through the organisation	CSB7

2.2.2.2. Organisational capabilities

One of the main variables, organisational capabilities, refers to the ***fit between the organisation and the strategy***. The structure of the organisation should be aligned with the strategy. Higgins (2005) and Li et al. (2010) indicate that the formulated strategy should correspond to the organisational structure because it influences the execution of the strategy. According to Dobni (2003) the strategy should be formulated around the core capabilities of the organisation, which should then support the strategy execution. To successfully implement a strategy it must not only be aligned with the environment but the organisation must have the capabilities to meet the strategy (Beer, Voelpel, Leibold, & Tekie, 2005). The fit between the strategy and the organisation is quite an important enabler of strategic alignment (a score of 9 on the ranking of enablers), but it is not seen as an important restriction (only a score of 3 on the ranking of constraints).

Failure to ***translate long-term strategic goal(s) into short-term objectives*** will lead the implementation effort to its end. It will have a significant negative effect on strategic alignment since it has a score of 11 on the ranking of constraints. When there are no short-

term objectives or actions the organisation and departments do not know their role and how to contribute to reach the overall strategic goal(s). It is challenging to translate long-term goals and plans into short-term tangible goals, which contribute in the long run to the long-term strategic goals (Bradley et al., 2013). Ali and Hadi (2012) recognise that there is a lack of conversion of appropriate strategic plans into business plans and short-term operational objectives. Interesting is that the translation of strategic plans is not identified as an enabler of strategic alignment, with only a score of 3 on the ranking of enablers.

Every action set up and executed on by the organisation has to contribute to the overall strategic goal(s). When an action or project does not contribute to the main goal there is no reason to execute the action. Every action or objective should create value for the organisation. When an action does create value for the organisation but does not contribute to the strategic goal(s), then the wrong strategy has been formulated. Management should make an inventory of key business processes and projects to determine whether they fit and support the chosen strategy (Vagadia, 2014). The ***contribution of actions*** should always be kept in consideration by the organisation when developing and implementing a strategy. However, both of the rankings show that the contribution of actions is neither an important enabler nor an important constraint, accordingly with a score of 4 and a score of 2 on the rankings.

Not only the core capabilities should support the strategy also the systems and processes should be in line with the strategy (Higgins, 2005). Without the ***support of systems*** it will be quite difficult for an organisation to implement a strategy. An organisation should always develop a strategy while keeping their existing and possible emerging systems in mind. The support of the systems is seen as an enabler and also as a constraint influencing strategic alignment. However, it is not one of the most important variables influencing strategic alignment. It has a score of 5 on the ranking of constraints and a score of 4 on the ranking of enablers.

An important phase of the strategy process is the strategic control phase in which is evaluated whether the strategy development and strategy implementation phases were successfully. This evaluation needs to be done not only after development and implementation take place but constantly during the process. The progress of the strategy process needs to be monitored while the effect on organisational performance needs to be measured. Therefore, without ***monitoring and measuring*** the organisation has no clue about the successfulness of its strategy. The lack of monitoring and measuring strategic change has a significant negative influence on strategic alignment; it scores an 11 on the ranking of constraints. With the use of monitoring and measuring organisations are more likely to reach strategic alignment, it has a score of 7 on the ranking of enablers.

Consequently, strategic control, monitoring and measuring could lead to identifying problems, obstacles, or struggles in the strategy process. These problems might require adjustments in the course of action of the strategy process. An organisation need to consider whether ***adapting plans*** is necessary to reach the strategic goal(s). The development and implementation of plans and actions has to be flexible instead of rigid. Adapting the strategic plans does not enable the strategic alignment, according to the ranking of enablers on which it scores a zero. It has some negative impact to have rigid plans to reaching strategic alignment, with only a score of 4 on the ranking of constraints.

Even when an organisation has the right structure, capabilities and systems to support the strategy one element is still missing. Employees are the critical cornerstone of every

organisation. With a new strategy there are often changes in working conditions. In some cases it might lead to a change in needed skills or competencies. An organisation needs to have ***employees with the right competencies*** for executing a strategy. The capabilities of the employees might restrict of enable strategic alignment. However, this impact is not significant according to the rankings. It scores a 5 on the ranking of constraints and a 4 on the ranking of enablers.

Inadequate management is a serious problem for the formulation and implementation of a strategy. According to Hrebiniak (2006) managers know more about strategy formulation than implementation. Corboy and Corrbui (2007) recognise this obstacle; one of their identified deadly sins of strategy implementation is that management steps out of the picture once implementation begins. The **involvement of management** during strategy implementation is just as necessary as the involvement during strategy development. Neilson et al. (2008) mention that it is an organisational trait for strategic alignment when managers up the line get involved in operating decisions, so they do not stop after the development of a strategy. Involvement of management is a clear enabler of strategic alignment (a score of 8) and the disengagement of management an obvious constraint of strategic alignment (a score of 10).

Organisational capabilities are not only about the fit with the organisation but also about how the organisation handles strategy development and implementation. For instance, Neilson et al. (2008) mention that one trait of strategic alignment is that once made strategic decisions are rarely second guessed. In the terms of ***decision-making***, management needs to make well-informed decisions. When management does not clarify their strategic decisions it becomes a serious pain constricting strategic alignment, scoring an 11 on the ranking of constraints. Consequently, when strategic plans are formed and decisions are made, management needs to be able to ***motivate*** their choices. When management motivates the decisions it could positively influence the strategic alignment. However, according to the ranking the motivation is not such an important enabler, it scores a 4 on the ranking of enablers.

Table 7 - The indicators for measuring the organisational capabilities (ORC)

Indicators for Organisational Capabilities (ORC)		
Indicator	**Definition**	**Item**
Fit organisation and strategy	The extent to which the strategy is in line with the organisation's capabilities	ORC1
Translation strategic goals	The act of translating (long-term) strategic goals/objectives into (short-term) objectives/actions	ORC2
Contribution actions	Whether actions contribute to the execution of the strategy	ORC3
Support of systems	Whether information systems support the strategy	ORC4
Monitoring and measuring	The extent to which the strategic progress is monitored and the impact on performance is measured	ORC5
Adapting plans	The act of refining and adapting strategic plans during implementation	ORC6
Employee competencies	Whether employees have the right competencies for reaching strategic goal(s)	ORC7
Involvement management	The extent to which management is involved during strategy implementation	ORC8
Decision making	Whether management takes enough time to make well-informed decisions	ORC9
Motivation management	Whether management is able to motivate strategic choices	ORC10

2.2.2.3. Communication

The last main variable which has a large impact on strategic alignment is ***communication***. Dobni (2003) describes that many difficulties of implementing a strategy are related to poor of inefficient communication, which undermines implementation. Poor or inadequate communication can doom the strategy implementation attempts (Hrebiniak, 2006); it scores an 11 on the ranking of pains constricting strategic alignment. This obstacle is mentioned by several other authors. Beer and Eisenstat (2000) mention poor vertical communication and Elquist LoRé (2012) state that insufficient energy is put toward communicating the plan. Communication scores a 10 on the ranking of enablers positively influencing strategic alignment and an 11 on the ranking of constrains. Communication has therefore a large influence on strategic alignment.

A poorly or vaguely formulated strategy is one of the most important problems when trying to implement the strategy. A poor strategy creates poor outcomes through poor implementation (Hrebiniak, 2006). Corboy and Corrbui (2007) see that a strategy which is not worth implementing as one of the deadly sins of strategy implementation. A lack of clear purpose for the organisation will lead to nowhere according to Thompson and Martin (2010). ***Strategy formulation*** should result in a formalised strategy, thus a defined and official strategy. On the ranking of enablers a clear defined strategy and strategic objectives has a score of 10, thus having a great positive influence. Accordingly, a poor or vague strategy has a score of 12 on the ranking of constraints. Strategy formulation is one of the key variables influencing strategic alignment.

Vagadia (2014) explains that for strategic alignment there should be clear understanding about how strategies will be translated into action across the organisation. Communication is about creating ***understanding*** throughout the organisation about the strategy, and about the and how of implementation. Luftman (2000) also recognises that communication and clear understanding are extremely important for successful strategy implementation. The reason for limited communication and no understanding is that the strategy is not formulated well enough and the purpose is not clear (Higgins, 2005; Li et al., 2010). The understanding about the strategy is quite important for reaching staretgic alignment. It scores a 6 on the ranking of constraints and a 5 on the ranking of enablers.

Li et al. (2010) explain that communication is mentioned most frequently in promoting strategy implementation. Communication includes explaining new ***responsibilities***, tasks, and duties needed to be performed. Vagadia (2014) explains that there should be a clear definition of purpose, values and behaviours that will be needed to guide the implementation process. The employees need to understand and know the ***impact*** of the strategy on their work. They need to know what the expected ***actions*** are from them to be able to contribute to reaching the strategic goal(s). Clear defined responsibilities and clear defined implications are both equally important influences on strategic alignment; they both score a 6 on the ranking of enablers. However, unclear implications are not important in terms of restricting strategic alignment. Unclear implications scores a 1 on the ranking of constraints while unclear responsibilities scores a 6 and are thus more important as a constraint.

Poor communication can be the result of an ineffective management team. Poor or inefficient communication refers to the inability of management to communicate with their employees. An inadequate management style is identified as a major constraint of strategic alignment, with a score of 9 on the ranking. Accordingly, an adequate management style positively influences strategic alignment, scoring a 9 on the ranking of enablers. The leadership or

management style is not sufficient enough to formulate and communicate a strategy within the organisation, which influences the implementation (Higgins, 2005). According to Li et al. (2010) executors are responsible for communication like top management, middle management and lower management. The quality of communication has a large impact on whether there is understanding within the organisation about the strategy. The ***quality of the communication*** is determined by whether the communication is frequent, timely, accurate, and accessible.

Table 8 - The indicators for measuring the communication (COM)

Indicators for Communication (COM)		
Indicator	**Definition**	**Item**
Strategy formulation	The presence of a formalised strategy (defined and official)	COM1
Communication	Whether there is clear communication of the strategy	COM 2
Understanding	Whether the majority of the organisation understands the strategy	COM 3
Impact	The extent to which impact of the strategy on employees is widely known	COM 4
Responsibilities	Whether responsibilities for reaching strategic goal(s) are known	COM 5
Actions	The extent to which employees have clear understanding of expected actions	COM 6
Quality communication	Whether communication is frequent, timely, accurate, and accessible	COM 7

2.2.2.4. Conclusion

This second section of the literature review provides answers to two of the sub-research questions. The sub-research question, "*Which variables have a positive influence (enablers) on reaching strategic alignment?*", can be answered by looking to the ranking of enablers in the previous sub-paragraphs. There are six enablers who score the highest on the ranking of the enablers, which are:

- An aligned culture or readiness for change.
- Good (continuous) communication.
- A clear defined strategy and strategic objectives.
- An adequate management style.
- A fit between the strategy and the organisational structure.
- Management which is involved in implementation.

The other enablers can be found in Table 5 or are explained in the previous sub-paragraphs. The sub-research question, "*Which variables have a negative influence (constraints) on reaching strategic alignment?*", can be answered in the same way. In the previous sub-paragraph the constraints of strategic alignment are also examined and ranked. All the constraints can be found in Table 4 of the previous paragraph. There are six constraints of strategic alignment identified with the highest ranking:

- A poor or vague strategy.
- Reluctance to change or resistance to strategic plans.
- Monitoring and measuring of strategic change is not adequate.
- Management does not clarify strategic decisions.
- Failure translating the long-term strategic goal(s) into short-term objectives or actions.
- Poor or inadequate communication.

2.3. Research model and hypotheses

For this research the information from the literature review is used to build the causal model which is going to be examined and tested. Strategic alignment is in this situation the dependent variable which is influenced by several direct and indirect indicators. Strategic alignment is measured when there is successful strategy development and successful strategy implementation experienced by an organisation. The indicators influencing strategic alignment are identified in the literature review and are assigned to several main categories. In the research model there are lines drawn between the independent main categories and the dependent variable strategic alignment. These lines represent the relationships between the main categories and strategic alignment. To these relationships there are no scores assigned yet, the weight or strength of the relationships have to be determined with the use of the data gathered in this research. The strength of these relationships is determined by developing and testing several hypotheses. In this research only the strength of the relationship is tested, whether there is a causal relationship is not examined. The research model developed for this research and the proposed relationships can be found in Figure 4.

The first main category is about the indicators of strategic alignment, which are the indicators directly influencing strategic alignment. These indicators might appear different from each other but are all concerned with the fit between strategy development (business) and strategy implementation (IT). The hypothesis for this main category is as follows:

> ***Hypothesis 1*** *– More awareness about strategy development (the fit with the environment) and strategy implementation (translation of strategic plans) being one process leads to fewer difficulties for the organisation in reaching strategic alignment.*

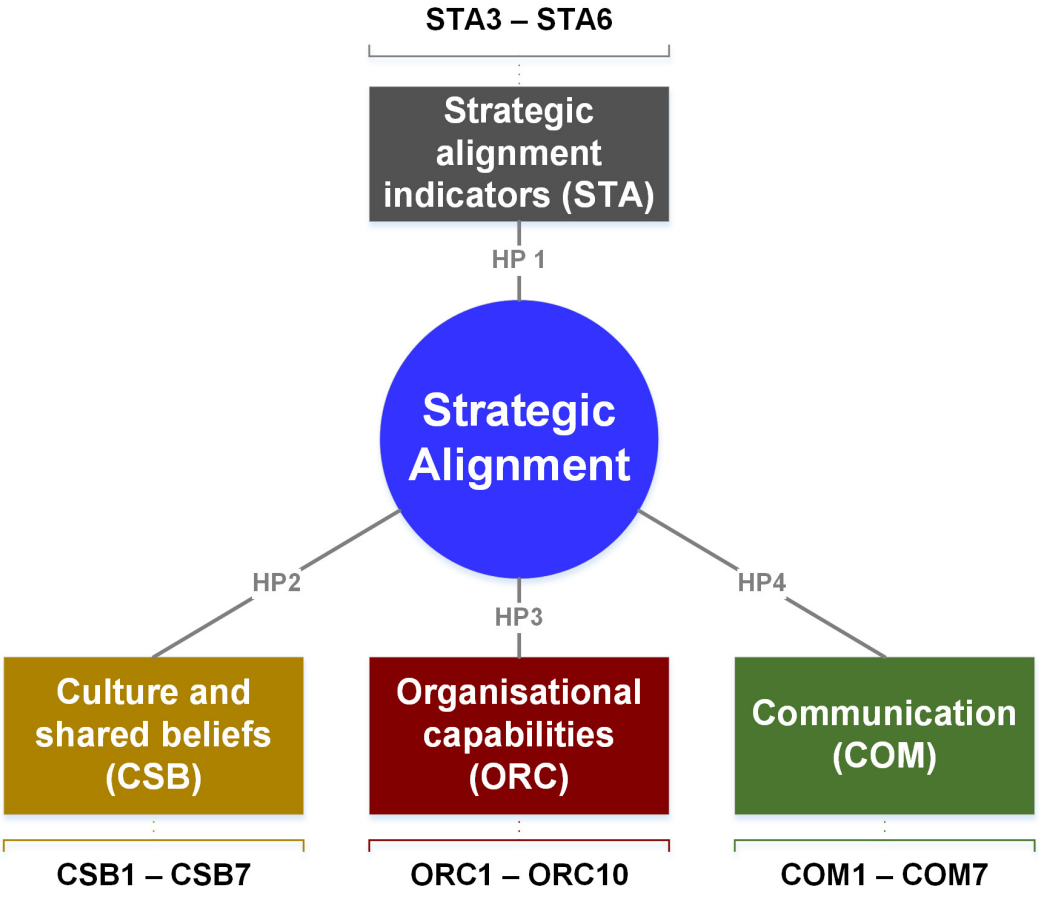


Figure 4 - Research model of the variables influencing strategic alignment

The second main variable is the influence of the organisation's culture and shared beliefs on reaching strategic alignment. There are several indicators that are concerned with and influence the mind-set within the organisation about strategic alignment. A hypothesis is formulated to test the proposed relationship between strategic alignment and the organisation's culture and shared beliefs.

> ***Hypothesis 2*** *- With a positive mind-set about strategic alignment the organisation experiences fewer difficulties in reaching strategic alignment.*

The third main variable focuses on the organisational capabilities and its influence on strategic alignment. The fit between the strategy and the organisational capabilities is about the capacity of the organisation to develop and implement the proposed strategy. There are several indicators which determine the organisational capabilities such as the structure, systems and management. For the third main category a hypothesis is formulated.

> ***Hypothesis 3*** *– With a fit between the organisational capabilities and the strategy the organisation experiences fewer difficulties in reaching strategic alignment.*

The fourth main variable is about the role of communication on the ability to reach strategic alignment. Communication is essential for an organisation trying to successfully implement a strategy. The indicators of communication are concerned for instance with whether the developed strategy is clear and understandable for the organisation. The proposed relationship between communication and strategic alignment can be tested with the following hypothesis:

> ***Hypothesis 4 –*** *With clear communication about the strategic plans the organisation experiences fewer difficulties in reaching strategic alignment.*

3. Research methodology

The research methodology describes the way this research is conducted. It starts with explaining the purpose of this research and what will be examined in the research. Subsequently the research strategy is identified and there is a description of how data is collected. The next few paragraphs concern these steps. The research is conducted in addition to the literature review to answer the following two sub-research questions:

- What are the efforts and experiences of organisations regarding reaching strategic alignment?
- Why do organisations struggle or experience difficulties when trying to reach strategic alignment?

3.1. Descriptive and explanatory research

This research is conducted with several research goals and purposes in mind. The first purpose is to determine whether organisations have reached strategic alignment. Information is gathered about the experiences and efforts of organisations regarding strategy development and strategy implementation. This first purpose is descriptive of nature which means that a description is given about observed patterns and about what these patterns imply (Babbie, 2010). An observed pattern could be for example that organisations have difficulties with strategy implementation. The description approach is about the what, where, when, and how of the examined concept. The second purpose of this research is to get a better understanding about why organisations experience difficulties with reaching strategic alignment. The variables influencing strategic alignment are examined to explain why organisations fail or succeed to reach strategic alignment. This second purpose is explanatory of nature because the relationships between variables are examined (Saunders et al., 2009). As already explained, a theory is to be formed from the literature with some variables which might influence strategic alignment. This theory is translated to a research model which can be found in paragraph 2.3, and hypotheses are developed. In the explanation approach the hypotheses are tested to see which variables actually influence strategic alignment. The explanation approach is about the question of why something occurs (Babbie, 2010).

3.2. Units of analysis

As been said, it is necessary to examine the organisations' experiences and efforts regarding strategic alignment to get a better understanding about strategic alignment. According to Babbie (2010) there is virtually no limit to what or who can be studied. The goal of this research is to get a better understanding about strategic alignment and the variables influencing strategic alignment. Strategic alignment is the result of an organisation's strategy development and strategy implementation efforts. Consequently, under analysis are the experiences and efforts of organisations regarding strategic alignment, and thus regarding strategy development and strategy implementation. This leads to organisations being the units of analysis. According to Babbie (2010) units of analysis are the what or whom being studied which can be individuals, groups, organisations, social interactions, or social artifacts.

It is challenging to observe the organisations' experiences without it taking too much time, effort and budget. Going to each organisation to observe their situation is close to impossible for this research. As a solution, people within the organisations are asked to share information about their organisation's experiences and efforts regarding strategic alignment. These people from organisations are the units of observation and therefore become the research population for this study. The population of the research is the aggregation of elements or cases from which the sample is actually selected (Saunders et al., 2009). Since the concept 'people of

organisation' is very broad and includes many people it is tried to narrow it down. There is the risk that not every person within an organisation has understanding about their organisations' experiences and efforts regarding strategic alignment. Therefore, a selection is made to make sure that only those people with knowledge about their organisations strategic alignment experiences and efforts are included. Basically, the population exists of everyone influenced by or supporting strategy development and strategy implementation.

3.3. Survey research

It is already established that it is time and budget consuming to go to every organisation to observe their situation regarding strategic alignment. Therefore, people from the organisations are asked to share information about their organisation's experiences and efforts. A survey strategy is the best way to ask these people their opinions on their organisation's experiences and efforts. The survey strategy is used because a large amount of data can be collected from a sizeable population in a highly economical way (Saunders et al., 2009). With the survey quantitative data is collected and can be analysed quantitatively to suggest possible reasons for relationships between variables. With the use of sampling it becomes possible to generate findings that are a representation for the whole population. The survey strategy can be time consuming since it is necessary to ensure that the sample is representative, there needs to be pilot testing of the data instrument and there is a need for a good response rate (Babbie, 2010). The survey research is used to gather observations which can be used to draw conclusions on strategic alignment. These observations are made by asking people from organisations their opinions on their organisation's strategic alignment efforts and experiences. The survey is going to be administered at one-point in time. Consequently, this research is a cross-sectional research since it is based on observations representing a single point in time (Babbie, 2010). The survey research has some weaknesses such as the use of a standardised questionnaire and the inflexibility during the research (Babbie, 2010). However, reaching a large population without taking too much time, effort and budget is best done with the use of a survey research.

3.4. Data collection method for survey research

Data will be collected by doing a survey research; more specifically a questionnaire is used as the data collection method. The following paragraphs describe some characteristics of the questionnaire, the conceptualisation of the questionnaire concepts, the construction of the questionnaire, and the development of the codebook.

3.4.1. The questionnaire

There are several methods to collect data for a survey research such as self-administered questionnaires, interview surveys, telephone surveys or online surveys. According to Babbie (2010) a questionnaire is a document containing questions and other type of items designed to solicit information appropriate for analysis. In this research a questionnaire is used to collect the necessary observations about strategic alignment. A questionnaire is general a technique of data collection in which each person is asked to respond to the same set of questions in a predetermined order (Saunders et al., 2009). The questionnaire of this research is designed as a self-administered questionnaire which is completed by the respondent. The questionnaire will be administered electronically using the Internet and is therefore an internet-mediated questionnaire. This kind of questionnaire is chosen to ensure that as many people possible answer the questions; reaching the sample otherwise is time and budget consuming. One of the downsides of using a self-administered internet-mediated questionnaire is that the response rate will likely be low. With the use of a follow-up mailing is tried to increase the response rate by getting some non-respondents still to respond. An upside of the questionnaire

is that the answers of the respondents cannot be contaminated (Saunders et al., 2009). The questionnaire is standardised for each respondent and pre-determined questions are asked leading to a higher reliability of everyone answering the same questions.

3.4.2. Conceptualisation

As already said, the questions are pre-determined before the questionnaire is sent out. To make sure that the questions ask for the information that is actually required, conceptualisation and operationalisation is applied. Conceptualisation means that the meaning of the concepts and variables to be studied are specified (Saunders et al., 2009). The concepts of the questionnaire are specified in advance, which is needed for a survey research. Babbie (2010) defines conceptualisations as the mental process whereby fuzzy and imprecise notions or concepts are made more specific and precise. In the theoretical framework each concept is explained into detail and the indicators for measuring each concept are described. An indicator is an observation that is considered to be a reflection of a variable studied (Babbie, 2010). Table 2, Table 6, Table 7 and Table 8 from chapter 2.2 display the indicators for the main variables, the definition of each indicator, and the corresponding survey item which connects the indicator with the codebook for the survey. By providing the indicator and the meaning of each indicator conceptualisation is applied. These indicators will be operationalised through the use of the codebook mentioned in the next paragraph.

3.4.3. Construction of the questionnaire

When the concepts from the literature are specified and therefore conceptualised operationalisation is needed to make the concepts measurable. Operationalisation is the development of specific research procedures that will result in empirical observations representing those concepts in the real world (Babbie, 2010). Operationalisation is about choosing which measurement techniques are going to be used and it is about determining the construction of the questionnaire items. In the next few paragraphs several aspects are addressed for constructing the questionnaire.

3.4.3.1. Types of variables

Through the use of a questionnaire data variables are collected in the form of opinions, behaviours and attributes (Saunders et al., 2009). Opinion variables record how respondents feel about something or what they think or believe is true and false, for example whether their organisation is successful in implementing a strategy. Behavioural variables contain data on what people did in the past, do now or will do in the future. The behavioural variables show for instance whether a respondent uses strategy techniques or methods to support strategy development or strategy implementation. Attribute variables contain data about the respondents' characteristics like the age, gender and function of the respondent. Behavioural and attribute variables are collected mainly through regular question items. Opinion variables are collected mainly through the use of statements. Statements are used to determine the extent of a particular attitude or perspective. In a statement the attitude is summarised briefly on which the respondents can disagree or agree (Babbie, 2010). The questionnaire will exist of several regular questions and of a large section of statements.

3.4.3.2. Questions

The questionnaire consists of a combination of closed-ended questions and open-ended questions with a majority of closed-ended questions. Open-ended questions are questions for which the respondent is asked to provide his or her own answers (Babbie, 2010). In this questionnaire they are used to probe the respondents for comments or additional answers which were not provided in the list of given answers for the closed-ended questions. The data

from the open-ended questions will be categorised. Categories will be derived from the answers by making labels for a group of data; terms will be used that emerge from the data. When the categories are established it becomes possible to count how often a certain term that stand for a group of data is mentioned in the responses.

Closed-ended questions are survey questions in which the respondent is asked to select an answer from a list with given answers (Babbie, 2010). The closed-ended questions are a combination of list questions, category questions and rating questions. A large part of the questionnaire consists of statements; these statements are a form of ranking questions. The respondents are asked to give their opinion on the statements regarding their organisations experiences and efforts. The answer possibilities are gives on the Likert-style rating scale. A Likert scale is a type of composite measure developed to improve the levels of measurement through the use of standardised response categories in survey questionnaires (Babbie, 2010). The Likert scale for the statements consists of response categories such as "strongly disagree", "disagree", "neutral", "agree", "strongly agree", and "n/a". For other rating questions, not in the form of statements, there are response categories such as "never", "sometimes", "most of the times", "always", and "n/a".

3.4.3.3. The questionnaire in general

The questionnaire has an introduction which explains the purpose of the questionnaire, the topic of the questionnaire, the amount of time it takes to complete the questionnaire, the rewards for completing the questionnaire, and some basic instructions. When sending the link for the questionnaire to several e-mail lists a short text is attached promoting the survey to get as many respondents possible. The layout of the questionnaire is arranged in such a way that the most general questions are asked first followed by the more specific questions. On each page there is a title and a short description of the content of the questions. The entire survey can be found in Appendix B - The survey.

The questionnaire will have besides the English version also a Dutch version to give the respondents a choice to which questionnaire they want to respond. With translating the questionnaire the sentences and words are translated while taken into account the literal meaning and the meaning of a sentence as a whole (Saunders et al., 2009). The questionnaire is administered electronically using the Internet. The website http://enquete.com/ is used to create the English and Dutch questionnaire. This website provides a way of collecting data which is easy in use, and it exports the gathered data to Excel or SPSS. There are two links to the questionnaire: http://alignment-eng.enquete.com/ and http://alignment-nl.enquete.com/.

3.4.4. The codebook for the questionnaire

The responses on the questionnaire will be analysed by using IBM SPSS Predictive Analytics-software. Before data can be analysed properly by the SPSS software it is necessary to code the questions and possible answers categories. A codebook is a document used in data processing and analysis that tells the location of different data items in a data file. Typically, the codebook identifies the locations of data items and the meaning of the codes used to represent different attributes of variables (Babbie, 2010). Each variable from the conceptualised tables from the previous chapter has its own abbreviation. For instance, strategic alignment has the abbreviation "STA". Each indicator of strategic alignment has the abbreviation STA plus the number representing the indicator, thus the indicator "One process" has the abbreviation "STA3". These abbreviations are called survey items since it tells the location of an indicator in the questionnaire. The codebook shows several elements like the survey item corresponding with a certain indicator, the question used to measure that

indicator, and the possible answer categories for the indicator. Table 9 shows a part of the codebook including the indictors influencing strategic alignment. The questions formed to measure the indicators of strategic alignment have the form of statements and the answer categories are distributed on a Likert scale. From Table 9 can be seen that some of the indicators are split up into multiple questions. Some indicators consist of multiple concepts, like the indicator "Representing interests" refers to both strategy development and strategy implementation. This might be confusing since interest might be represented during development but not during implementation. Therefore, some indicators or variables are split up into multiple questions. The entire codebook can be found in Appendix C - The codebook.

Table 9 - Codebook for the indicators influencing strategic alignment

Item	Question	Answers
STA	***Strategic alignment***	
STA3	Strategy development and implementation are seen as one process.	1 = strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree 6 = n/a
STA4a	The majority of organisation is represented during development.	
STA4b	The majority of organisation is represented during implementation.	
STA5a	During strategy development the resources are considered.	
STA5a	During strategy development the capabilities are considered.	
STA6	During strategy implementation actions are defined according to strategic plans.	

4. Data collection from the questionnaire

Before the actual questionnaire can be used to gather the data a pre-test is necessary to ensure that there are no obvious errors and problems endangering the quality of the questionnaire. When this pre-test is conducted the actual sample can be selected. How the sample is selected is explained in this chapter. The quality of the questionnaire is tested by examining the reliability and the validity of the data resulting from the questionnaire. At the end of the chapter the demographics of the respondents are described like the individual characteristics and the organisational characteristics.

4.1. Pre-testing the questionnaire

According to Babbie (2010) there is always the possibility of error in the construction of the questionnaire. The surest protection against such error is to pre-test the questionnaire in full or in part. Before the questionnaire can be sent out to the selected sample it needs to be tested to make sure that the questionnaire is well-constructed and valid. For this reason the questionnaire is pre-tested. The pre-testing was divided into two tests; the first test was a sparring session with some experts on the topic. The second test involves letting some people complete the survey. In the sparring session four people were involved with affinity to research and strategic alignment. They provided comments and improvement points by discussing the questionnaire. In the second pre-test five people of BiZZdesign completed the survey. Preferably, the pre-test would have included more participants but the choice was made not to exhaust the possible respondent group. Participants to the pre-test could not participate in the actual questionnaire. After completing the questionnaire the participants were asked to comment on:

- how long the questionnaire took to complete;
- the clarity of instructions;
- which, if any, questions were unclear or ambiguous;
- which, if any, questions the respondent felt uneasy about answering;
- whether in their opinion there were any major topic omissions;
- whether the layout was clear and attractive;
- any other comments.

The comments of the participants were used to make adjustments to the questionnaire. The questionnaire was tested for reliability with Cronbach's Alpha. Cronbach's alpha (α) is a measure of the internal consistency of a test or scale, and is expressed as a number between 0 and 1 (Tavakol & Dennick, 2011). It indicates whether the scale consistently reflects the construct it is measuring. The internal consistency describes the extent to which all the items in a test measure the same construct. According to Tavakol and Dennick (2011) the acceptable values lie between the ranging from 0.70 to 0.95. A low value of alpha could be explained by a low number of questions, poor interrelatedness between the items or heterogeneous constructs. The scores for the pre-test can be found in Table 10. Since, the Cronbach's Alpha is for all constructs above the 0.70 it seems that the questionnaire shows internal consistency for the measured constructs.

Table 10 - Cronbach's Alpha for pre-tested questionnaire constructs

Construct	α (Cronbach's Alpha)
Culture and shared beliefs (CSB)	0.812
Organisational capabilities (ORC)	0.921
Communication (COM)	0.930
Return and risk (RAR)	0.892

4.2. Selecting the sample

The research population, as mentioned in paragraph 3.2, exists of everyone with knowledge about their organisation's strategic alignment experiences and efforts. Unfortunately, this research population mostly exists of people with a relatively high position within their organisation such as managers, enterprise architects, and consultants. Reaching the people from the research population is challenging since there is no physical accessibility. Contact will have to emerge from knowing them personally or contacting them through internet; resulting in only a small part of the population being reached.

To ensure that the sample will be large enough to make sufficient statistical analyses help is asked from others. In collaboration with BiZZdesign, the Open Group, the Association of Enterprise Architects (AEA), and the Nederlands Architectuur Forum (NAF) contact is sought with the potential participants. These organisations agreed to distribute the survey among their members in turn for the analysed results. In addition, Linked-In groups are used to promote the survey as well as Twitter. There is even a blog written about strategic alignment referring to the questionnaire. Combining all these efforts to reach out to possible participants approximately 10.000 people are contacted. However, since the contact is not personalised and most of it is through the use of internet it results in a low response rate. However, this is expected with the use of internet-mediated questionnaires (Babbie, 2010).

Within this research a non-probability sampling method is used, namely the self-selection sampling method (Saunders et al., 2009). Only those respondents are included in the survey who responded to the invite. The actual response on the questionnaire was 319, which means a response rate of 3.19%. However, not all the respondents completely filled in the questionnaire or did not provided sufficient answers. These responses are left out of the analysis which leads to a useable sample of 175 fully completed responses.

4.3. Quality of the questionnaire

The quality of the questionnaire can be determined by examining the reliability of the findings, the validity of the questionnaire, and the research ethics of the questionnaire. These three parts for determining the quality will be addressed in the following sub-paragraphs.

4.3.1. Reliability

Saunders et al. (2009) refer to reliability as the extent to which the data collection techniques or analysis procedures will yield consistent findings. According to Babbie (2010) reliability refers to the quality of the measurement method that suggests that the same data would have been collected each time for repeated observations of the same phenomenon. Since this research is conducted at one-point in time there is no way of telling whether a repetition of the research will result in the same findings. However, timing will not influence the results of the participants much since the subject of the survey is not changing rapidly. The strategic alignment experiences of organisations nowadays are not going to change in a week or a month. Even though there is no way of telling whether another research will have the same results, it is tried to make the survey as reliable possible. Since the questionnaire is entirely anonymous and conducted online there is no threat of subject or participant bias, which means that participants do not have to be afraid of what others might think. The survey is set up with a clear structure and has been several times tested to make sure that there is no wrong interpretation possible of the questions; therefore observer error is avoided.

The actual questionnaire is, just like in the pre-test, tested for reliability with the use of Cronbach's Alpha. The internal consistency of the constructs is measured and is expressed with a number between 0 and 1. The Cronbach's Alpha gives an indication whether the items assigned to a construct are consistently reflecting the construct. The scores of the Cronbach's Alpha test can be found in Table 11. For all the constructs the Cronbach's Alpha's lie between the range of 0.7 and 0.95, suggesting that there internal consistency for the constructs.

Table 11 - Cronbach's Alpha for the actual questionnaire constructs

Construct	α (Cronbach's Alpha)
Strategic alignment (STA)	0.743
Culture and shared beliefs (CSB)	0.851
Organisational capabilities (ORC)	0.890
Communication (COM)	0.927
Return and risk (RAR)	0.864

4.3.2. Validity

While reliability is concerned with the ability of an instrument to measure consistently, the validity is concerned with the extent to which an instrument measures what is intended to measure (Tavakol & Dennick, 2011). Consequently, validity is concerned with the extent to which the measure accurately reflects the concept that is intended to be measured (Saunders et al., 2009). Babbie (2010) explain that there are several criteria which help determine the validity of the measure. The first criterion, face validity, is about the quality of an indicator that makes it seem a reasonable measure of a variable. Through the literature review an assessment is made to subdivide the variables under four main variables. This assessment is made by looking critically at the indicators; each indicator has aspects which are relevant for the main variable. During the pre-test there were no indications that the participants found the indicators for a certain concept confusing. The second criterion is criterion-related validity, which is the degree to which a measure relates to some external criterion, sometimes called predictive validity. It is concerned with the ability of the measures (questions) to make accurate predictions (Babbie, 2010). In some cases, answering a simple question like whether an organisation successfully implements strategies can lead to some forecasting for the other variables. With the analysis of the data these criterion-related variables are kept in mind. The third criterion, construct validity, is the degree to which a measure relates to other variables as expected within a system of theoretical relationships. It is about the logical relationships among variables. Construct validity refers to the extent to which your measurement questions actually measure the presence of those constructs you intended them to measure (Babbie, 2010). Since the measures are directly related to the indicators, by conducting the operationalisation, it is sure that a question actually measures an assigned indicator. The last criterion is content validity and it is about the degree to which a measure covers the range of meanings included within the concept (Babbie, 2010). Content validity refers to the extent to which the measurement device provides adequate coverage of the investigative questions. Some of the indicators consist of multiple concepts which might be confusing for a respondent because they do not know to which concept to respond. Therefore, some indicators are split up into multiple questions to make sure that all the concepts are covered but do not get confused with each other.

To test whether the indicators measure what is intended to be measures a bivariate correlation analysis has been used. The direction of the relationship of the constructs with strategic alignment is determined, the constructs influence strategic alignment. Therefore a one-tailed test applies to determine the significance. The cross-correlation matrix can be found in

Appendix D - Correlation between indicators. This cross-correlation matrix usually exists of all indicators of the constructs. Since this matrix is too large to fit on the page only the indicators of strategic alignment (STA) and culture and shared beliefs (CSB) are shown. The green areas indicate the correlation between variables within a construct. From the table can be seen that usually the correlations between indicators of a certain construct are a higher than with indicators of other constructs. However, this is not always the case. For instance, the correlation between the direct influences on strategic alignment, like STA3 and STA4b (a score of 0.101), is lower than the correlation between STA3 and CSB1 (a score of 0.167). Nevertheless, based on the other determinations of validity the indicators seem to be valid enough to continue the analysis.

4.3.3. Data distribution

Skewness is the measure of asymmetry of the distribution; it measures the degree and direction of the asymmetry. A positive value indicates that the long tail of the distribution is with the higher values, thus the distribution is skewed to the right. Accordingly, a value of zero indicates a symmetrical distribution such as a normal distribution. From Table 12 can be seen that most of the constructs are not normally distributed but have a distribution which is skewed to the right, thus the mean is higher than the median. Only the CSB construct has almost a normal distribution with a score of 0,073.

Kurtosis is the shape of the distribution in comparison with the normal distribution; it measures the heaviness of the tails of a distribution. If the kurtosis is positive it means that the top of the distribution is higher than the normal distribution. A value of zero indicates that the shape is similar to the shape of a normal distribution. From Table 12 can be seen that the kurtosis scores for each construct is larger than zero, which means that the tails of the distributions are heavier than for a normal distribution.

Table 12 - Skewness and kurtosis of the questionnaire constructs

Construct	Skewness	Kurtosis
Strategic alignment (STA)	0,428	2,740
Culture and shared beliefs (CSB)	0,073	1,067
Organisational capabilities (ORC)	0,306	1,003
Communication (COM)	0,271	0,890
Return and risk (RAR)	0,521	0,080

Based on scores of the skewness and kurtosis can be determined that the constructs do not have a normal distribution. Therefore, a parametric test does not apply for this research. For a parametric test assumptions are made about the distribution of the variables, like that there is a normal distribution. Since there is no normal distribution the non-parametric tests can be used to analyse the data, which are not based on strong assumptions.

4.3.4. Research ethics

There are some general ethical issues which are considered in this research. The first is the privacy of possible and actual participants which is harboured since the questionnaires can be answered anonymous and are completed online. The respondents can choose anonymity by not leaving their e-mail address behind at the end of the questionnaire. Anonymity exists when neither the researchers not the readers can identify a given response with a given respondent. A respondent can choose for confidentiality when they leave their e-mail address behind. In this case confidentiality means that the researcher can identify a given person's response but promises not to do so publicly (Babbie, 2010). The second ethical issue is the

voluntary nature of participation and the right to withdraw partially or completely from the process (Babbie, 2010). The respondents are asked to fill in the questionnaire, whether they do so is entirely their own choice. Even when they have started to fill in the questionnaire they can choose to stop at any moment. The third ethical issue is consent and possible deception of participants. With every questionnaire a clear introduction is given about what is asked from the respondents and what is done with the results. When they start with the questionnaire they give their consent to the indicated terms. The fourth ethical issue is the maintenance of the confidentiality of data. The gathered data is not distributed to others without a clear reason; the names of the respondents are not known and will not be registered without them choosing so. The fifth ethical issue is the reactions of participants to the way data is collected. The data is collected through an internet-mediated questionnaire. Therefore, there is no physical contact with an interviewer or someone conducting the questionnaire. In this way embarrassment, stress, discomfort, pain and harm are avoided. The sixth ethical issue is the effects on participants of the way in which data is analysed and reported. It is made sure that the respondents are clear about what will be done with the data from the questionnaire, if they feel uncomfortable in any way they can choose not to complete the questionnaire. The last ethical issue which is considered in this paper is the behaviour and objectivity of the researcher. There will be no direct contact, only through an e-mail. With use of the appropriate writing language to the respondent the behaviour will not be a problem.

4.4. Demographics of the sample

When the data is collected from the remaining 175 responses, excluding the incomplete responses, the demographics of the sample can be determined. The demographics include personal characteristics and organisational characteristics.

4.4.1. Personal characteristics

The questionnaire was sent to the contact lists of BiZZdesign, the Open Group, the AEA, and the NAF resulting in a final sample of 175 responses. From these responses some personal characteristics can be derived. Striking is that there is a large amount of males responding to the questionnaire; about 93.7% of all the respondents are male. The reason that females did not respond to the questionnaire could be due to several reasons. For instance, because of the smaller amount of woman at higher positions in the organisation or because there was only a small group of possible female respondents contacted. The distribution of male and female respondents can be seen in Figure 5.

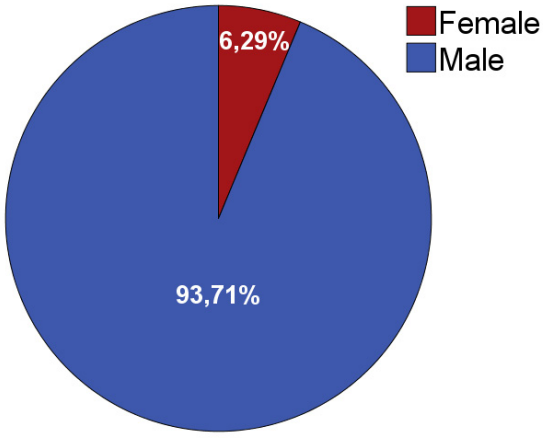


Figure 5 - The gender of the respondents

Table 13 - Age of the respondents

Age of respondents		
	N	Percent
21 - 30	4	2.3%
31 - 40	33	18.9%
41 - 50	76	43.4%
51 - 60	50	28.6%
> 60	12	6.9%

Most of the respondents have an age that lies between the 41 and 60 years, which indicates that the respondents were of a somewhat older age. The distribution of the age of the respondents can be found in Table 13.

Another, more important to the analysis, personal characteristic is the function of each respondent in the organisation. Most of the respondents are enterprise architects, about 33.7%. This seems reasonable because mainly architects are reached through the AEA and the NAF. Another large group of the respondents are consultants, about 23.4%, which is plausibly since BiZZdesign is a consultancy organisation though which mainly consultants are reached. Table 14 shows the total division of the functions of the respondents. There are 11 respondents who indicate that they have another function than is described. These 11 functions are sub-divided into the function category which is most closely related.

Table 14 - Function of the respondents within their organisation

The function of the respondents		
	N	Percent
CEO/COO	3	1.7%
Managing Director/General Manager	9	5.1%
CTO/CIO/CSO/CFO	12	6.9%
Consultant	41	23.4%
Governance, Risk & Compliance	3	1.7%
Human Resources	1	0.6%
Information Technology	19	10.9%
Enterprise Architect	59	33.7%
Strategy	4	2.3%
Research & Development	3	1.7%
Portfolio manager	1	0.6%
Marketing & Sales	1	0.6%
Program & Project manager	8	4.6%
Other, please specify:	11	6.3%

4.4.2. Organisational characteristics

It is not only important to know about the individual characteristics of the respondents but also information is required about the organisation they work for; for which they are answering to the questionnaire. The first characteristic that can be determined is the size of the organisations. Table 15 shows the distribution of the organisations' sizes. Most of the organisations are quite large with more than 500 employees, approximately 73.1% of the organisations. The remaining organisations are mainly smaller organisations with less than 50 employees, about 12.6% of the organisations.

Table 15 - Size of the organisations

The size of the organisations		
	N	Percent
< 50 employees	22	12.6%
50 – 100 employees	7	4.0%
101 - 200 employees	5	2.9%
201 - 300 employees	8	4.6%
301 - 400 employees	1	0.6%
401 - 500 employees	4	2.3%
> 500 employees	128	73.1%
Total	175	100.0%

The organisations can be active in multiple industries, which is also an organisational characteristic. The data indicates that 24.6% of the organisations are active in the information and communication industry, while 21.7% of the organisations are active in the finance and insurance industry. About 18.9% of the organisations are active in the public administration and defence industries. The distribution can be of activity in industries is shown in Figure 6.

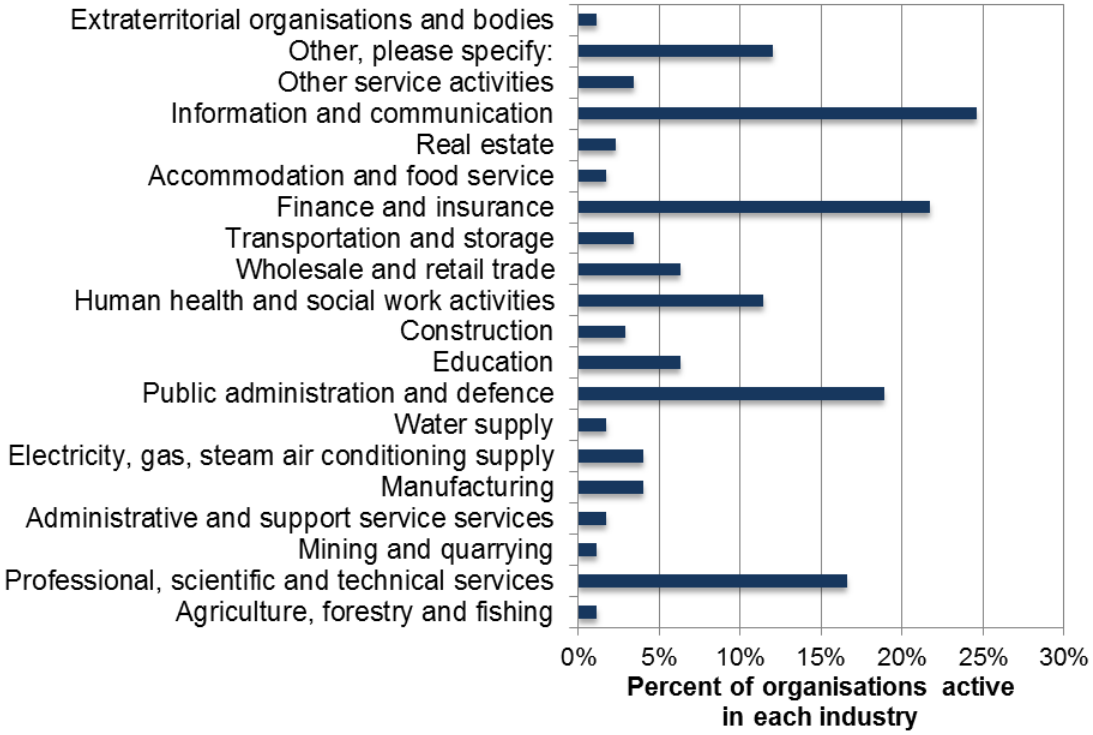


Figure 6 - The industries in which the organisations are active

Another organisational characteristic is the region in which an organisation operates. From Figure 7 can be seen that the largest part of the organisations are located in West Europe, approximately 71.4% of the organisations. About 37.4% of the organisations have a location in North Europe. Many organisations are globally active and are located in multiple regions.

Figure 7 - The regions in which the organisations are located

5. Data analysis

The data gathered from the questionnaire has to be analysed before the hypotheses and the research model can be tested. In the first paragraph the data is analysed to test the hypotheses. The strength of the relationships between the constructs and strategic alignment can be determined. The second paragraph describes the additional findings of the questionnaire.

5.1. Testing the research model

The purpose of this research is to determine which variables influence strategic alignment. Relationships between strategic alignment and the developed constructs are proposed with the use of the research model shown in Figure 4. Without the use of observations there was no way to determine the strength of these relationships. With the use of the data from the questionnaire the strength of the proposed relationships can be determined. In the previous chapter is described that there is a non-normal distribution of the data. Therefore, a non-parametric test has to be used to determine the relationships between the proposed constructs and strategic alignment.

A non-parametric measure for determining the strength and direction of relationships is the Spearman rank-order correlation coefficient, also known as Spearman's correlation. The relationship between two variables is measured usually on an ordinal scale. The correlation coefficient of each construct is denoted by the symbol r_s and the significance level is donated by the symbol p. The correlation coefficients of each of the constructs can be found in Table 16. From the table can be deducted that the strategic alignment indicators are significantly correlated to strategic alignment, with $r_s = 0.346$ and $p < 0.01$. Culture and shared beliefs is significantly correlated with strategic alignment with $r_s = 0.481$ and $p < 0.01$. Organisational capabilities is significantly correlated with strategic alignment with $r_s = 0.484$ and $p < 0.01$. As last, communication is significantly correlated with strategic alignment with $r_s = 0.425$ and $p < 0.01$. All the proposed relationships are positive and significant. The strengths of the relationships are closely related to each other. The indicators of strategic alignment have the weakest relationship with strategic alignment, while the construct 'organisational capabilities' has the strongest relationship.

Table 16 - Spearman's correlation between the constructs and strategic alignment

Spearman's correlation		
		Alignment
Strategic alignment indicators (STA)	Correlation Coefficient	.346**
	Sig. (1-tailed)	.000
Culture and shared beliefs (CSB)	Correlation Coefficient	.481**
	Sig. (1-tailed)	.000
Organisational capabilities (ORC)	Correlation Coefficient	.484**
	Sig. (1-tailed)	.000
Communication (COM)	Correlation Coefficient	.425**
	Sig. (1-tailed)	.000

**. Correlation is significant at the 0.01 level (1-tailed).

Based on the information about the correlation between the constructs and strategic alignment the research model from Figure 4 can be adjusted by including the strengths of the relationships. The adjusted research model can be found in Figure 8.

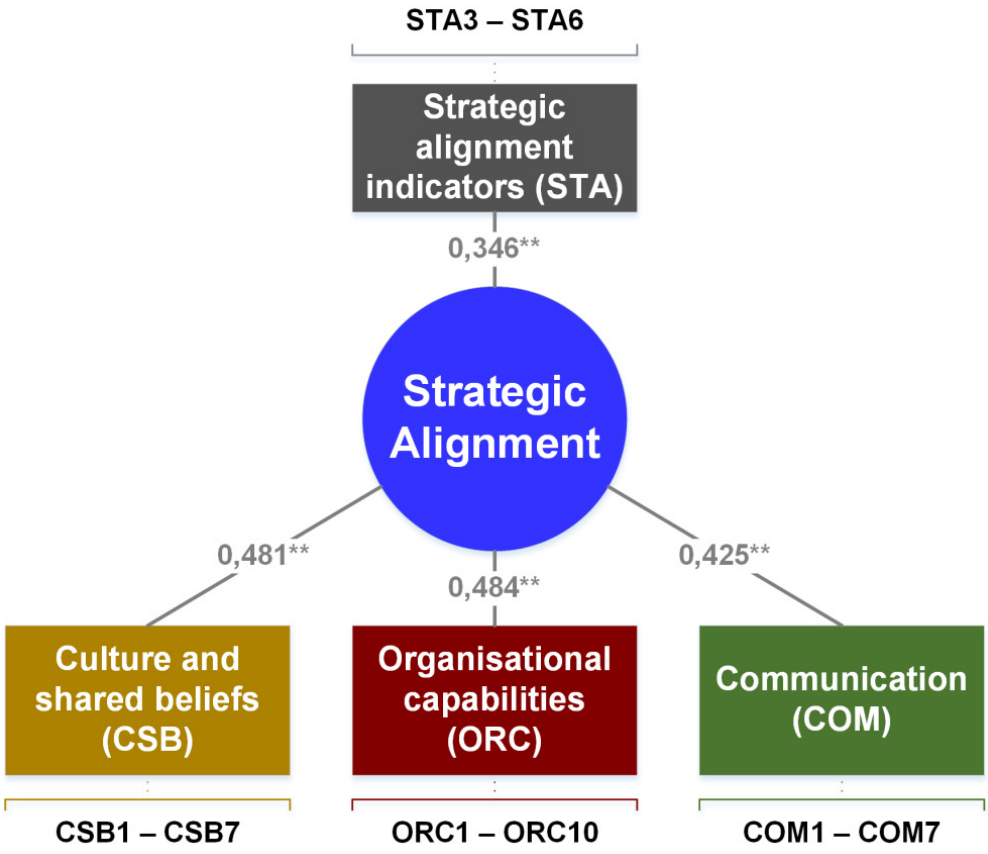


Figure 8 - Research model including the strengths of the relationships

5.1.1. Testing the hypotheses

With use of Spearman's correlation can be determined that all four of the formulated hypotheses of this research are accepted. There is no reason to think that there are no significant relationships between the constructs and strategic alignment. The scores of the Cronbach's Alpha were sufficient as well as the Spearman's correlation. Each hypothesis and its outcome can be found in Table 17

Table 17- The outcomes of the testing of the hypotheses

Hypotheses	The statement	Outcome
Hypothesis 1	More awareness about strategy development (the fit with the organisation) and strategy implementation (translation of strategic plans) being one process leads to fewer difficulties for the organisation in reaching strategic alignment.	Accepted
Hypothesis 2	With a positive mind-set about strategic alignment the organisation experiences fewer difficulties in reaching strategic alignment.	Accepted
Hypothesis 3	With a fit between the organisational capabilities and the strategy the organisation experiences fewer difficulties in reaching strategic alignment.	Accepted
Hypothesis 4	With clear communication about the strategic plans the organisation experiences fewer difficulties in reaching strategic alignment.	Accepted

5.2. Additional data analysis

The purpose of this research is not only to determine whether there are relationships between the constructs and strategic alignment. Understanding is needed about the efforts and experiences of organisations regarding strategic alignment. Determining which variables have a relationship with strategic alignment is just the first step in understanding strategic alignment. In the questionnaire additional questions are added to gather more information about the way organisation move from strategy development to strategy implementation. The questionnaire provides more data to be analysed than only the data for testing the hypotheses.

5.2.1. Strategic alignment

In the literature review is mentioned that there is strategic alignment when there are no problems with strategy development and with strategy implementation. When there are problems in one of the phases of the strategy process it means that strategic alignment is not reached. Even though strategic alignment is an ideal state which cannot be completely reached, the extent of strategic alignment can be determined by analysing the extent of problems during development and implementation. Table 18 shows that only 9 organisations experienced no problems during strategy development and during strategy implementation. This would indicate that approximately 5.1% of the organisations have reached a state of strategic alignment. In contrary, 90 organisations experienced problems simultaneously during development and during implementation. When there are problems both during development and during implementation the organisation has not reached any form of strategic alignment. About 51.4% of the organisations did not have any indication of strategic alignment. The table also shows that there are more problems identified during strategy implementation than during strategy development. Approximately 56.0% of the organisations experienced problems during development compared to 74.3% of the organisations suffering problems during strategy implementation.

Table 18 - Determining strategic alignment

Determining strategic alignment though STA1 and STA2								
		The strategies are implemented without any problems.						
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	n/a	Total
The strategies are developed without any problems.	Strongly disagree	11	3	2	0	0	0	16
	Disagree	13	63	6	0	0	0	82
	Neutral	1	25	20	3	0	0	49
	Agree	3	9	4	7	0	0	23
	Strongly agree	0	0	0	1	1	0	2
	n/a	1	1	0	0	0	1	3
	Total	29	101	32	11	1	1	175

Interesting are the different perspectives of several function groups on identifying problems during strategy development and strategy implementation. Several of the functions from Table 14 can be grouped together into a function category, resulting in the following categories: management, consultants, architects, IT specialists, and others. In Table 19 is displayed how each function category responded on the statements and how often they identified problems during development or implementation. From the data in the table can be derived that management is frequently more optimistic about the situation of the organisation. A smaller part of the management identifies problems during strategy development compared

to the other function groups. About 45.5% of the management identifies problems during strategy development compared to 61.0% of the architects. The difference between the function groups is even larger for the problems identified during strategy implementation. Approximately 57.6% of the management identifies problems during strategy implementation, compared to about 83.1% of the architects. This suggests that management does not see the problems during strategy development and implementation as well as the other function groups. Remarkable is that a rather large part of the architects identify problems in both situation compared to the other function groups.

Table 19 - Problems identified by function category

Development and implementation problems identified by function category						
		Management	**Consultants**	**Architects**	**IT specialists**	**Others**
The strategies are developed without any problems.	Strongly disagree	12.12%	2.44%	11.86%	0.00%	17.39%
	Disagree	33.33%	48.78%	49.15%	52.63%	52.17%
The strategies are implemented without any problems.	Strongly disagree	12.12%	7.32%	23.73%	15.79%	21.74%
	Disagree	45.45%	70.73%	59.32%	52.63%	52.17%

5.2.2. Involvement during development and implementation

One of the ideas behind strategic alignment is that a strategy is developed in such a way that the interests of the entire organisation are considered and represented. Table 20 shows that disciplines such as Program & Project Management and IT are getting more involved after the strategy is already developed, thus during the strategy implementation phase. During strategy development only 36.2% of the organisations involve Program & Project Management, comparing to 63.6% of the organisations during strategy implementation. Strategic alignment is among others about the fit between the business and IT. Consequently, not involving the IT as much during development as during implementation will not support the organisations to reach strategic alignment.

Table 20 - Involvement of disciplines during development and implementation

	Involved during development	**Involved during implementation**
Finance	56.9%	43.4%
Portfolio Management	37.4%	48.6%
Legal	24.1%	20.2%
Enterprise Architecture	44.3%	56.6%
Governance. Risk & Compliance	41.4%	35.8%
Program & Project Management	36.2%	63.6%
Human Resources	31.6%	35.3%
Information Technology	55.7%	73.4%
Marketing & Sales	52.3%	41.6%
Research & Development	29.3%	23.7%
Other. please specify:	13.2%	9.8%

A larger part of the respondents who are never or sometimes involved during the development of strategies recognised problems in strategy development and strategy implementation, than the respondents who are most of the times or always involved. This trend can be seen in Table

26 from Appendix E - Analysis of the data resulting from the questionnaire. The same applies for involvement during strategy implementation; the part of the respondents not frequently involved during strategy implementation recognises more problems than the respondents frequently involved during implementation. Accordingly, approximately 84.5% of the respondents not frequently involved during implementation identified problems compared to 69.6% of the respondents often involved during strategy implementation. A possible reason could be that the interests of the respondents not involved in the process are not considered which will lead to more problems for them.

5.2.3. The use of strategy techniques and methods

To establish what the efforts of organisations are regarding reaching strategic alignment it is examined whether they use strategy techniques or methods to support the development and implementation of strategies. The largest part of the organisations, about 40.5%, uses strategy techniques sporadically to support the strategy process. Only 27.7% uses strategy methods frequently and 16.8% always use strategy techniques to support the development and implementation of strategies. The distribution of the use of strategy methods is shown in Table 27 from Appendix E - Analysis of the data resulting from the questionnaire.

Figure 9 displays that organisations use the SWOT analysis most frequently as a strategy technique to support strategy development and implementation. Approximately 80.5% of the organisations use the SWOT analysis, 74.0% the Business case, 48.1% the Balanced Scorecard, and 44.2% the critical success factors. Close runner-ups are the Strategy map and the Business Model canvas. The other strategy techniques or methods are not used that often. However, even though a large part of the organisations use strategy method such as the SWOT analysis only a small part uses these methods frequently or always, as can be seen from Table 27 in Appendix E - Analysis of the data resulting from the questionnaire.

Figure 9 - The use of strategy techniques and methods

Based on the previous findings can be said that organisations do not use strategy techniques frequently to support the efforts towards reaching strategic alignment. However, this does not mean that there is no willingness to use a technique or method to support development and implementation. When asking the organisations whether they will use a software tool, when a good tool is available, to support strategy development and implementation only 9.7% said that they will not use it. From Figure 10 can be seen that quite a large part of the organisations will definitely use the software tool, about 42.9%.

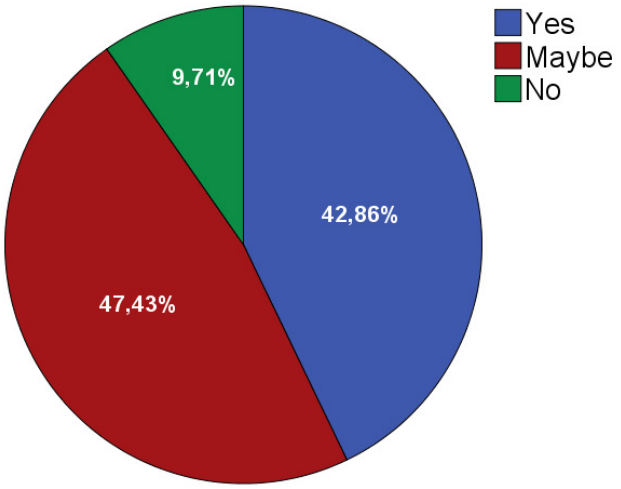


Figure 10 - The willingness to use software tools

5.2.4. The difficulties for organisations in the strategy process

With the use of the research model is established that the four constructs have a significant effect on reaching strategic alignment. However, the causal model does not provide any information about the indicators within the constructs. In this paragraph is determined which variables are experienced by the organisations as problems influencing the strategy process.

5.2.4.1. Strategic alignment indicators

The data from the questionnaire shows that organisations do not have many problems with considering the resources and capabilities during strategy development. Of the organisations 24.9% did not consider resources, and 20.0% neglects to consider the capabilities. During strategy implementation about 58.6% of the organisations define their actions according to the strategic plans. The organisations did not experience many problems in defining the strategic plans; only 15.5% did experience problems with defining strategic plans. A bigger problem to the strategy process is the fact that 46.5% of the organisations do not have a representation of the majority of the organisation during strategy development. During strategy implementation a larger part of the organisations do acknowledge that the majority is represented; only 29.3% disagreed. This is in line with the findings about the involvement of disciplines during strategy development and implementation, represented in Table 20. Several disciplines are getting more involved only when the strategy is already developed, thus during strategy implementation. The largest problem identified influencing the strategy process is the fact that organisations do not see strategy development and strategy implementation as one process. From the organisations 55.5% do not see it as one process but as two separate processes. Which indicator is identified as the largest difficulty can be seen in Figure 11.

Figure 11 - Problems for each indicator of strategic alignment

5.2.4.2. Culture and shared beliefs

The second construct is the organisation's culture and shared beliefs. In Figure 12 can be seen which indicators belonging to this construct are identified as problems experienced by the organisations. According to the data from the questionnaire the organisations experienced the least problems with the direction of work. Only 9.7% of the organisations mention that the work is not aimed towards reaching strategic goal(s). The other indicators did not stand out much as a negative influence on the strategy process, except for one. About 14.8% of the organisations have no common strategic goal(s), 18.9% do not recognise the individual contribution to development, 20.5% do not experience collaboration in reaching strategic goal(s), 23.4% have climate with no willingness to change, 24.0% do not recognise the individual contribution to implementation, and for 27.5% of the organisations is strategic change not coordinated by management. The only indicator that significantly stands out from the others is the fact that priorities regarding reaching strategic goal(s) are conflicting. About 64.6% of the organisations experience conflicted priorities.

Figure 12 - Problems for each indicator of culture and shared beliefs

5.2.4.3. Organisational capabilities

From Figure 13 can be seen that the indicators of organisational capabilities are in general identified more often as problems for organisations, compared to the indicators of culture and shared beliefs. The indicator that is mentioned the least as a problem is the involvement of management during strategy implementation. Only 8.0% of the organisations have a management which is uninvolved during strategy implementation. Around the 25.0% to 30.0% of the organisations have a management which is not able to motivate the strategic choices, have strategic plans which cannot be refined or adapted, have a strategy which is not in line with the organisation's capabilities, have no monitoring of the progress of strategy development and implementation, have actions that do not contribute to the execution of the strategy, have a management which does not take enough time for well-informed decisions, and have employees which not have the right competencies. All these indicators are closely distributed to each other. A problem which is more often identified is about the translation of the strategic plans. About 35.5% of the organisations did not successfully translate the long-term strategic goals to short-term objectives, and 34.2% experienced that the strategic objectives are not sufficiently translated into clear actions. The largest problem influencing the strategy process is the fact that the strategy is not supported by the existing information systems; of the organisations 51.1% experienced this. A clear overview of the indicators and how often they are identified as a problem can be found in Figure 13.

Figure 13 - Problems with each indicator of organisational capabilities

5.2.4.4. Communication

The last construct is about the communication within the organisation. For all the indicators of communication a part of the organisations experience problems. However, there is no one or two outliers as for the previous constructs. Most of the organisations have a formalised strategy; approximately 18.3% disagreed and indicate that a clear defined strategy is lacking for their organisation. About 23.4% of the organisations have unclear communication of the strategy, while 29.3% of the organisations have infrequent communication. Consequently, most of the organisations have sufficient communication. There are some more problems identified with the timing, accuracy, and accessibility of the information communicated; respectively experienced as a problem by 30.3%, 33.5% and 36.7% of the organisations. Of

the organisations 35.6% have a strategy which is not understood by the majority of the organisation, and 38.8% of the organisations have employees which do not have a clear understanding about the expected actions.

The two indicators that stand out most are the impact of the strategy and the responsibilities. The responsibilities for reaching strategic goal(s) are not known for 45.2% of the organisations, while the impact of the strategy on the employees is not known for 45.4% of the organisations. Consequently, organisations experience most problems with undefined responsibilities and unknown implications of the strategic plans. An overview of the indicators of communication can be found in Figure 14.

Figure 14 - Problems with each indicator of communication

5.2.5. Variables with a negative influence on strategic alignment

According to the previous paragraphs there are several variables which are experienced by multiple organisations as problems during the strategy process. However, it does not say anything about which variables influence strategic alignment. To get an understanding of which indicators of each construct influence strategic alignment two situations are developed and compared. In the first situation only the responses of the organisations that do not experience strategic alignment are considered. All the other responses of organisations that do experience strategic alignment are left out of the analysis. For the organisations that do not experience strategic alignment is examined to what extent they experience problems for each indicator of the four constructs. In the second situation only the responses of organisations that do experience partially or full strategic alignment are taken into account, the other responses are dismissed. For this scenario is also examined to what extent the organisations experience problems for each indicator. When both situations are examined a comparison can be made. When there are as much problems identified for an indicator for organisations with no strategic alignment as for organisations with strategic alignment this indicator does not influence the extent of strategic alignment. If many organisations with no strategic alignment experience problems with a certain indicator compared to none of the organisations with strategic alignment than the indicator does influences the extent of strategic alignment.

An example is provided in Table 21 in which the indicators of strategic alignment are compared for the two scenarios. Before the comparison is made the indicator "***one process***" is seen as the biggest problem experienced by the organisations. However, when looking at the comparison from Table 21 it becomes clear that almost as many organisations with strategic alignment do not see strategy development and strategy implementation as one process compared to the organisations without strategic alignment. Consequently, this problem does not influence the extent of strategic alignment since organisation with strategic alignment still experience the problem. From the table can be seen that the indicator "***representing interests***" has the biggest influence on strategic alignment. 36.7% of the organisations without strategic alignment experience that the majority of the organisation during strategy implementation is not represented compared to 8.3% of the organisations with strategic alignment. Of the organisations without strategic alignment 54.1% does not represent the majority of the organisation during development compared to 30.6% of the organisations with strategic alignment. Therefore whether the interests of the majority of the organisation are represented is the most important strategic alignment indicator negatively influencing strategic alignment.

Table 21 - Strategic alignment indicators influencing strategic alignment

Strategic alignment indicators	**No strategic alignment**	**Strategic alignment (partial or full)**	**Difference**
Strategy development and implementation are seen as one process.	57.8%	47.2%	10.6%
The majority of organisation is represented during development.	54.1%	30.6%	23.5%
The majority of organisation is represented during implementation.	36.7%	8.3%	**28.4%**
During strategy development the resources are considered.	27.8%	11.1%	16.7%
During strategy development the capabilities are considered.	24.5%	2.8%	21.7%
During strategy implementation actions are defined according to strategic plans.	17.8%	2.8%	15.0%

The complete comparison can be found in Table 35 from Appendix E - Analysis of the data resulting from the questionnaire. For the construct culture and shared beliefs the indictors negatively influencing strategic alignment are the same as the ones identified as the largest difficulties experienced in the strategy process. About 71.1% of the organisations without strategic alignment experience conflicting priorities compared to 27.8% of the organisations with strategic alignment. From the organisations with strategic alignment only 2.8% indicate that strategic change is not coordinated by management compared to 38.9% of the organisations without strategic alignment. Therefore, the indicator "***priorities***" has the largest negative influence on strategic alignment followed by the indicator "***coordination***".

From paragraph 5.2.4.3 can be seen that the largest problem identified for the construct organisational capabilities is that the existing information systems do not support the strategy. However, with the use of the comparison from Table 35 can be seen that this indicator does not influence strategic alignment the most. From this table can be seen that the indicator that has the largest negative influence on strategic alignment is about the successful translation of long-term goals into short-term objectives. 48.8% of the organisations without strategic alignment do not think that they successfully translated the long-term strategic goals compared to only 5.6% of the organisations with strategic alignment. The other indictor with a large influence is also concerned with the translation; consequently whether the strategic

objectives are sufficiently translated into clear actions. 43.4% of the organisations without strategic alignment did not think so compared to only 2.8% of the organisations with strategic alignment. Consequently, the indicator "***translation strategic goals***" has the largest negative influence on strategic alignment.

The last construct is communication, for which unknown responsibilities and unknown impact of the strategy are identified as the most common difficulties during the strategy process. The indicator "***impact***" has also the largest negative influence on strategic alignment. About 58.9% of the organisations with no strategic alignment indicate that the impact of the strategy on the employees is unknown compared to 13.9% of the organisations with strategic alignment. The indicator "***understanding***" has the second largest impact on strategic alignment. 45.6% of the organisations without strategic alignment say that there is no understanding from the majority of the organisation for the strategy while only 2.8% of the organisations with strategic alignment say so.

Concluding, by comparing the impact of all the indicators from all the four constructs together a list of the five biggest influences on strategic alignment can be made. It is clear that not knowing the impact of the strategy on the employees has the largest influence on strategic alignment. The second largest negative influence on strategic alignment is the presence of conflicting priorities regarding reaching strategic goal(s). After those two influences the unsuccessful translation of long-term strategic plans to short-term objectives limits the reaching of strategic alignment the most. The fourth variable negatively influencing strategic alignment occurs when the majority of the organisation does not understand the strategy. The last of the five main negative influences on strategic alignment exists when employees have no clear understanding of the expected actions.

5.2.6. The way organisations move from development to implementation

To get a better understanding of the way organisation move from strategy development to strategy implementation more information is needed. In this section more specific questions are analysed with a combination of closed-ended and open-ended questions. There are six main categories each consisting of two or three questions, with always at least one open-ended and one closed-ended question. For each category the data is gathered and analysed. In the next few sub-paragraphs the analysed data is mentioned and displayed. The results on the closed-ended questions can also be found in Table 34 from Appendix E - Analysis of the data resulting from the questionnaire.

5.2.6.1. Communication and the defining of boundaries of strategic plans

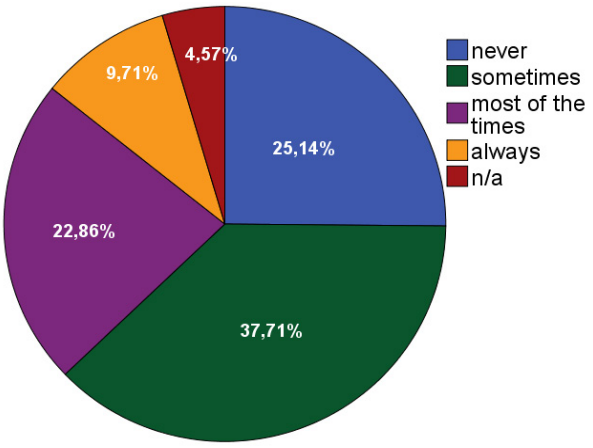
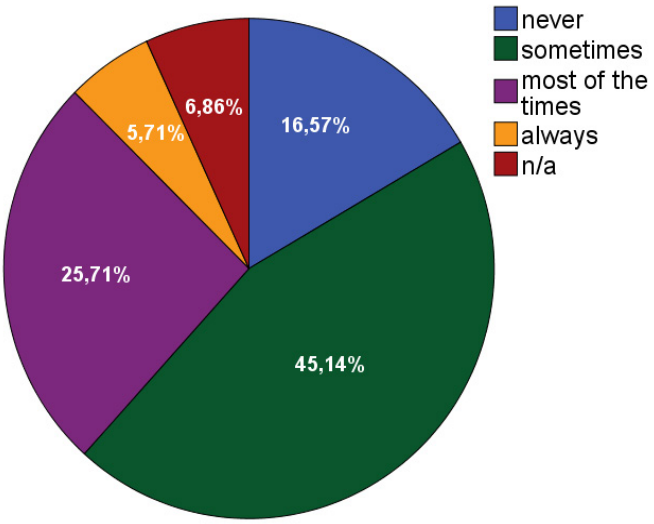


Figure 15 - Use of a controlled language

The first category is about the way organisation communicate their strategic plans and how the boundaries are defined. In the questionnaire is asked whether the organisations use a controlled language to communicate the strategies. From Figure 15 can be seen that a large part, approximately 62.9%, does not frequently use a controlled language. Only 32.6% uses a controlled language most of the times or always to communicate their strategic plans. This result suggests that most of the organisations have no formalised way of communicating their strategic plans.



The second question of this category concerns whether the boundaries of strategic transformations are defined by the organisations. About 16.6% indicate that the boundaries are never defined while 5.7% of the organisations always define the boundaries of strategic plans. The largest part of the organisations defines the boundaries sometimes, approximately 45.1%. From Figure 16 can be seen that 25.7% of the organisations frequently define the boundaries. Consequently in some cases strategic transformations have no defined boundaries, this makes it difficult to manage and steer strategic changes.

Figure 16 - Defining of boundaries of strategic plans

The open-ended question of this category examines how the boundaries of strategic transformations are defined. The respondents give various responses on this question, but they agree on several aspects that determine the boundaries of strategic alternatives. The main aspect that defines strategic transformations, and which is mentioned by multiple respondents, is the fact that the boundaries are defined by the ***budget*** that is set for the strategic transformations. These respondents mention that strategic transformations are dependent of financial resources. An aspect influencing the boundaries, which is also mentioned by many of the respondents, is the ***scope*** of the strategic plans. The scope determines the work that is needed to execute the strategic transformation and consequently the scope defines the boundaries. Another factor determining the boundaries of strategic transformation is the amount of ***time*** available for the strategic changes. Two other factors influencing the defining of the boundaries is the influence or opinion of the ***management*** and the development of ***objectives*** for strategic plans. These five aspects are mentioned by multiple respondents, which will lead to believe that they define the boundaries of strategic plans. The respondents mention more aspects but these are insufficiently reaffirmed by others. All the aspects can be found in Table 36 in Appendix F - Analysis of open-ended questions.

5.2.6.2. Communication of the intent behind strategic plans

The second category is about the consistently communication of the reasoning behind strategic transformations. From Figure 17 can be seen that about 44.6% of the organisations frequently communicate the reasoning while 54.3% never or sometimes communicate the reasoning behind strategic changes. Employees might be more reluctant to change when they do not know about the reasons behind strategic changes, which could be the case for several of the organisations. Apparently, a large part of the organisations do not consistently communicate their strategic intents.

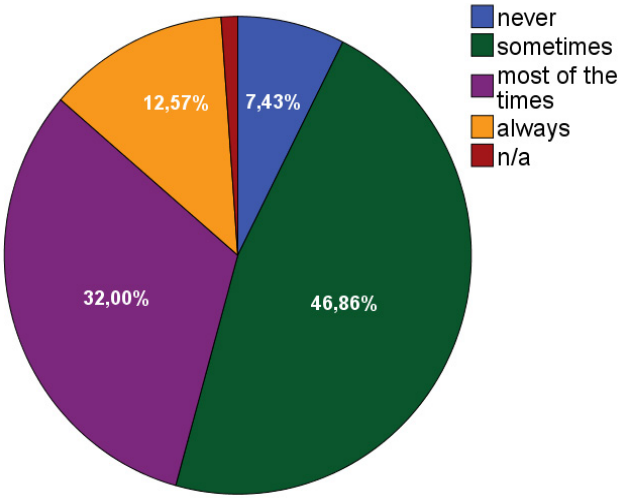


Figure 17 - Consistently communication reasoning

The open-ended question for this category is used to gather information about how the intent behind strategic plans is consistently communicated. For this open-ended question many and various responses were given. Some of the answers were given by multiple respondents. One of the main communication channels used to communicate the intent behind strategic plans is the ***intranet*** of the organisations. The intranet is most frequently used to communicate strategic plans, and often in combination with ***written reports*** or ***video's*** uploaded to the intranet. A large part of the respondents indicate that the reasoning behind strategic plans is mainly communicated by the ***management*** or the ***CEO*** of the organisation. The management explains the reasons behind strategic transformation. Often the intent is communicated through the use of ***presentations***. A part of the respondents mention that the intent is communicated through all sorts of ***meetings*** like town hall meetings, quarterly meetings, monthly management meetings, yearly meetings, and regular meetings. Some other ways of communicating the intent behind strategic plans is done through ***e-mail*** of through ***newsletters*** within the organisations. Concluding, the intent is communicated with the use of several channels such as intranet, presentations, e-mail, video's or newsletters, it is communicated at several kinds of meetings, and usually communicated by the management of the organisation. For this question there are more responses provided which are not mentioned here, these are displayed in Table 37 from Appendix F - Analysis of open-ended questions.

5.2.6.3. Alignment of different values and goals to one common (strategic) goal

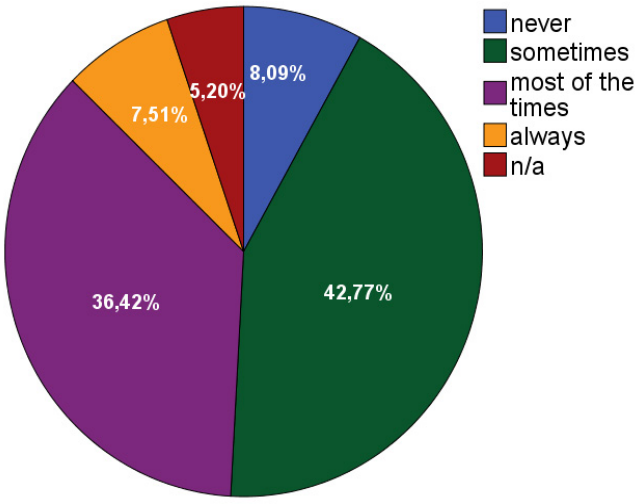


Figure 18 - Different values/goals are aligned

The third category is about the alignment of different values and goals to one common (strategic) goal. Figure 18 shows that 50.9% of the organisations' different values and goals are never or sometimes aligned to one common (strategic) goal. About 43.9% of the organisations have aligned their different values and goals to one common (strategic) goal. A part of the organisations needs to align their different goals and values to be able to reach strategic alignment. More than half of the organisations fail to reach this alignment.

More information about this category is gathered by asking how the organisations aim personal values and goals to one common (strategic) goal. The respondents also gave various answers to this open-ended question. However, in this case there was less overlap between the answers. The only aspect that multiple organisations use to align different values and goals to one-common (strategic) goal is to ***define personal target objectives***, thus by setting individual objectives. By setting these personal objectives it is made sure that everyone works towards the strategic goal. Another aspect on which some respondents agree is that the ***values need to be defined*** which will lead to alignment between personal and organisational values. ***Training*** and ***education*** are used to make sure that everyone knows to what strategic goal they should aim. There are many more aspects mentioned by the respondents but these are not often mentioned by other respondents as well, and therefore they are not seen as an aspect influencing the alignment of different goals to one common (strategic) goal. These aspects can be found in Table 38 in Appendix F - Analysis of open-ended questions.

5.2.6.4. Stakeholder collaboration and interdependencies

The fourth category is about the collaboration and interdependencies between the stakeholders of the organisation. As first is asked whether the need for collaboration between stakeholders is recognised by organisations. Approximately 58.6% of the organisations do recognise the need for collaboration frequently, thus most of the times or always. Figure 19 shows that about 37.3% of the organisations do not recognise the importance and the need of the collaboration between stakeholders. Strategic changes often involve multiple departments, which makes collaboration essential. An organisation should recognise this need for collaboration.

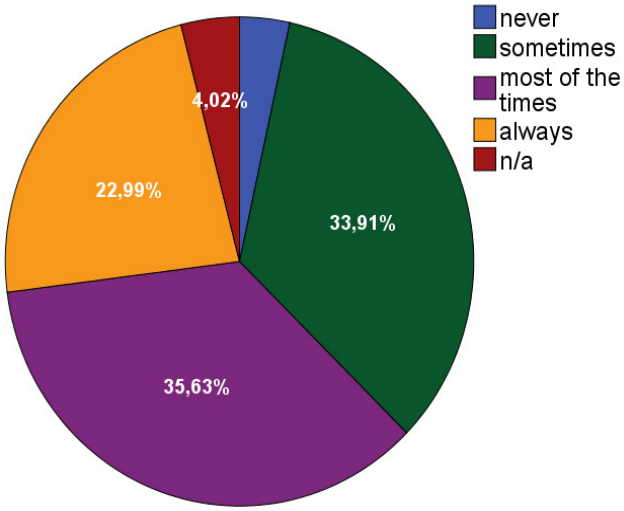


Figure 19 - Recognition need collaboration stakeholders

The second question of this category refers to the traceability of interdependencies between stakeholders across different domains. In Figure 20 can be seen that a large part of the organisation does not (often) trace the interdependencies across different domains. About 61.1% of the organisations have no traceability of the interdependencies between stakeholders. Only 32.0% trace the interdependencies frequently, thus always or most of the times. Consequently, most of the organisations cannot trace the interdependencies which makes is difficult to see which stakeholders are dependent of each other.

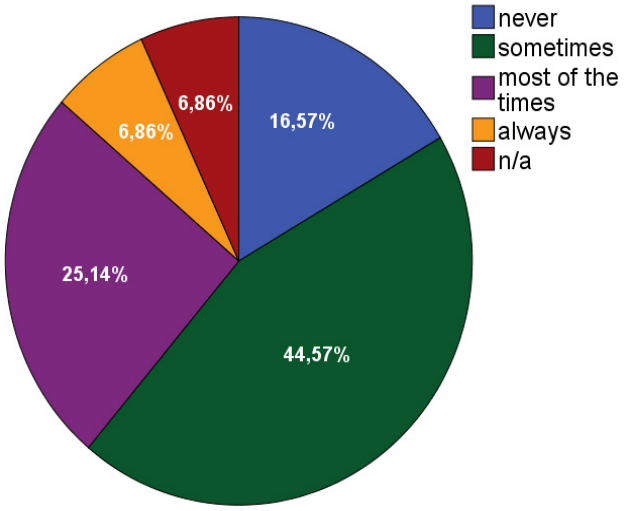
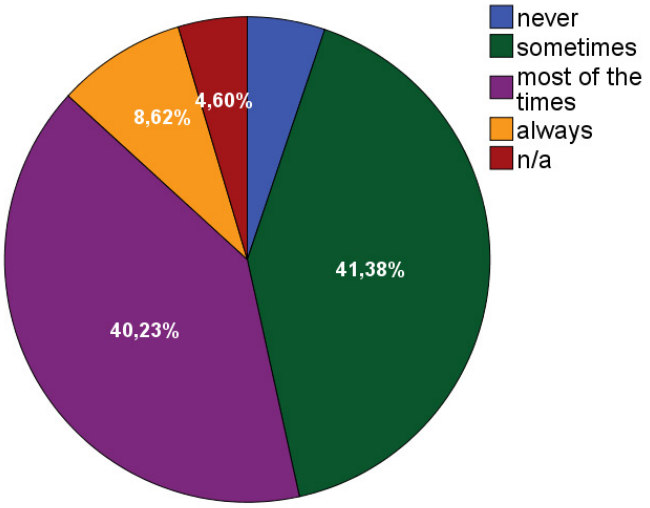


Figure 20 - Traceability of interdependencies stakeholders

The open-ended question belonging to this category examines the way that organisations recognise the interdependencies between stakeholders. Striking is that many of the respondents agree that the interdependencies are recognised ***ad-hoc*** and even ***informal***. They indicate that is done by ***common knowledge***, by just knowing the people and ***understanding*** who works with who. However, not everyone uses an informal method for recognising the interdependencies between stakeholders. Some of the respondents agree that a ***stakeholder interdependencies matrix*** can be used or a ***stakeholder analysis***. Others say that ***Project and Portfolio management*** can be used to determine the interdependencies. ***Mapping*** is also used to get insight of the interdependencies. There are several other answers given by the respondents which are not mentioned here. These can be found in Table 39 stated in Appendix F - Analysis of open-ended questions.

5.2.6.5. The defining of the necessary changes for reaching strategic goals



The fifth category is about defining the necessary changes and actions for reaching the strategic goals. About 48.9% of the organisation does frequently define the necessary changes and actions for reaching strategic goals. However, about 41.4% define the necessary changes and actions some of the times and 5.2% of the organisations do not define them at all. Figure 21 shows these percentages for the answer categories. Consequently more than half of the organisations define the necessary changes and actions for reaching strategic goals.

Figure 21 - Defining of necessary changes and actions

To get more information about the way organisation define the necessary changes and actions to reach the strategic goal(s) an open-ended question is formulated. Many of the respondents agreed that ***Project and Program management*** can be used to define the necessary changes and actions. Within the Project and Program management the necessary actions are described and therefore defined. Another aspect on which several respondents agree on is that ***management*** usually define the necessary actions and changes, some even mention the CEO. Next to Program and Project management there are several other tools used for defining the necessary changes such as ***roadmaps***, ***discussions***, and ***gap analyses***. More answers and aspect can be found in Table 40 from Appendix F - Analysis of open-ended questions.

5.2.6.6. Traceability and contribution of operations and projects

The sixth and last category is about the traceability and contribution of operations and projects. The first question belonging to this category is about whether the organisations have vertical traceability between management layers of how strategic goals are translated into operations. From Figure 22 can be seen that 14.5% of the organisations never had vertical traceability between management layers of the translation strategic goals into operations. About 45.7% of the organisations sometimes trace the translation of strategic goals vertically, 25.4% vertically trace the translation of strategic goals most of the times, and 8.7% always trace the translation through management layers. A large part of the organisations are not aware of how the translation of strategic plans is done through the management layers.

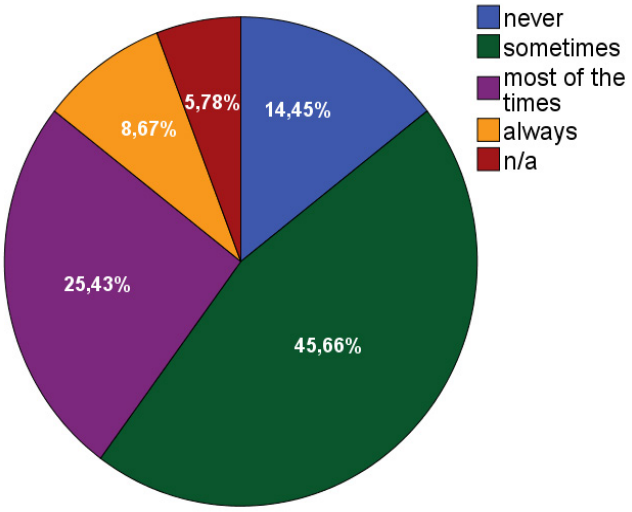


Figure 22 - Vertical traceability translation startegic goals

The second question of this last category is about the communication of the contribution of each project for reaching strategic goals. About 16.1% of the organisations have no communication of the contribution of each project. 43.6% of the organisations have only sporadic communication of the contribution while 24.8% of the organisations frequently communicate the contribution of each project. Approximately 12.8% of the organisations always communicate the contribution of each project for reaching strategic goals.

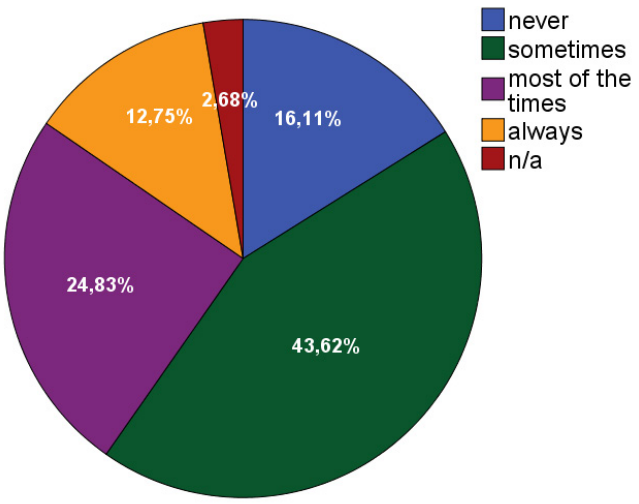


Figure 23 - Communication contribution project

For this last category an open-ended question is formulated to gather more information about how organisations communicate the contribution of each project to reaching the strategic goals. There are several communication channels which are frequently used, as indicated by multiple respondents such as the ***intranet***, ***newsletters***, ***e-mail***, and ***presentations***. ***Meetings*** play an important role in communicating the contribution as well as the ***communication*** itself. The contribution of projects is also communicated by determining the ***contribution to the KPIs*** of an organisation, or through the use of ***project plans*** or ***milestones***. There are many other answers provided by the respondents, these can be found in Table 41 displayed in Appendix F - Analysis of open-ended questions.

6. Discussion, conclusions and limitations

This last chapter of the research provides a discussion in which the findings of the research are mentioned and reviewed. In this discussion answers on the last two sub-research questions are given. In the conclusions the main research question is answered and a reflection is made about whether a solution to the problem statement is provided. The last parts of this chapter describe the limitations of this research and recommendations for future research.

6.1. Discussion

The discussion can be used to answer the sub-research question, "*What are the efforts and experiences of organisations regarding reaching strategic alignment?*". There is not one answer to this sub-research question since there are multiple findings which are answering this question together. The following findings provide the answer.

The analysed data from the Strategic Alignment survey, described in the previous paragraphs, provide some interesting findings. From the analysed data can be seen that only a few organisations experience strategic alignment; they did not experience any problems during both strategy development and strategy implementation. This is coherent with the findings from the literature review since strategic alignment is according to the literature an ideal state in which there are no difficulties with both strategy development and strategy implementation. Strategic alignment is defined as an ongoing process with continuous adaptation and change. Remarkable is that a much larger part of the organisations experience problems during both strategy development and strategy implementation. This suggests that organisations should improve their strategy process before they can reach some form of strategic alignment.

The analysed data shows that there are more problems experienced during strategy implementation than during strategy development. Developing a strategy might be a daunting task, but implementing that strategy is even more challenging. The literature confirms that many problems occur during strategy implementation since this is when the ideas formulated in the development stage have to become reality. A different finding shows that management is more optimistic about the situation of the organisation during strategy development and strategy implementation. Especially during strategy implementation a smaller part of the management experience problems compared to the other function categories. There could be several reasons for this distinction between the function categories. In the literature review is identified that management is often not involved during the implementation stage which could explain that they experience less problems. Another reason could be that management is not directly affected by each problem while the other function groups are affected, which will lead to management experiencing the problems less seriously. Interesting is that the analysed data shows that only a small part of the organisations have a management which is uninvolved during strategy implementation, which contradicts the first reason for the distinction. What the actual reason is for this distinction is not identified in this literature review or in the Strategic Alignment survey. Corresponding to this finding the architects are most pessimistic about the situation of their organisation since a large part of them experience problems during strategy development and even a larger part during strategy implementation. The cause of this finding is not found in the literature review or the survey.

According to the literature review an organisation must involve the interests of the entire organisation in both strategy development and strategy implementation to avoid challenges and to come closer to strategic alignment. The findings of this research suggest that most of the organisations fail to involve the interests of the majority. Program and Project management becomes involved after the strategy is developed, thus in the implementation

phase. The same applies for the IT which is less involved during strategy development than during strategy implementation. Consequently, the disciplines mainly responsible for implementing a strategy are excluded during the development of a strategy. Strategic alignment is among others about the fit between the business and the IT. When IT does not get involved during strategy development there can hardly be a fit. Organisations should make sure that IT among others has an input in the strategy development phase, which could lead to fewer difficulties during the implementation phase.

Another finding has to do with the involvement during strategy development and implementation. The respondents who were uninvolved during strategy development and implementation experience more problems during development and implementation than those who were involved. This is especially the case for the respondents uninvolved during strategy implementation; they experience much more problems than those involved. This finding also leads back to the fact that an organisation should involve the interests of the entire organisation to be able to reach strategic alignment. A possible reason for this finding could be that the interests of the uninvolved respondents were not considered which will lead to more difficulties for them since the strategy is developed without considering their capacities and capabilities. The literature review suggests that one of the most important pitfalls is that the organisation fails to consider the necessary involvement of personnel in the strategy development phase.

Organisations can support their strategy process by the use of several techniques, methods, tools or models. From the Strategic Alignment survey can be seen that the efforts of organisations towards reaching strategic alignment do not include the use of strategy techniques. Only a small part of the organisations use strategy techniques or methods frequently. A larger part uses techniques and methods sporadically or even never. When the organisations do use strategy techniques or methods (sporadically or frequently) the largest part use the SWOT analysis, followed by the business case as second most used. In the literature SWOT analysis is frequently mentioned as a tool used to support strategic decision making. Even though strategic techniques are not frequently used the respondents are willing to use a software tool (when a good one is available) to support strategy development and strategy implementation.

The final sub-research question, "*Why do organisations struggle or experience difficulties when trying to reach strategic alignment?*", can also be answered with the use of this discussion. This research tests hypotheses to see whether certain constructs have a relationship with strategic alignment. These constructs are: strategic alignment indicators, culture and shared beliefs, organisational capabilities, and communication. The data from the Strategic Alignment survey shows that there is a significant relationship between each construct and strategic alignment. It is safe to say that these constructs have an actual relationship with the strategic alignment of an organisation. However, these constructs are main categories which each consist of several indicators. Therefore nothing is said yet about which variable is experienced by multiple organisations as a problem during the strategy process or which variable is a negative influence on strategic alignment. The five variables which are identified by the largest part of the organisation as problems during the strategy process are as follows:

1. Priorities regarding reaching strategic goal(s) are conflicting.
2. Strategy development and implementation are not seen as one process.
3. The strategy is supported by existing information systems.
4. The majority of organisation is not represented during development.
5. Responsibilities for reaching strategic goal(s) are unknown.

These above mentioned problems are present for organisations with or without strategic alignment and provide no additional information about whether they influence strategic alignment. The following five aspects negatively influence strategic alignment:

1. The impact of the strategy on the employees is not known.
2. Priorities regarding reaching strategic goal(s) are conflicting.
3. Long-term goals are unsuccessfully translated into short-term objectives.
4. The majority of the organisation does not understand the strategy.
5. Employees have no understanding of the expected actions.

The five main problems and five main influences have an overlap in one variable but for the others they differ. In the literature review an assessment is made of the variables constraining strategic alignment. Through this assessment was expected that the following variables had a large influence on strategic alignment:

- A poor or vague strategy.
- Reluctance to change or resistance to strategic plans.
- Monitoring and measuring of strategic change is not adequate.
- Management does not clarify strategic decisions.
- Failure of translating long-term strategic goal(s) into short-term objectives or actions.
- Poor or inadequate communication.

While the six described variables from the literature review assessment do present problems for the organisations, they are not the main variables influencing strategic alignment. Only the variable about translating strategic goal(s) is identified in both the literature review and in the survey as an important variable negative influencing strategic alignment. Since some of the literature is dated from several years ago this might provide an explanation for the differences between the findings in the literature and the findings from the survey. The variables that were previously considered in the literature as a main problem are now managed better which results in other problems being the main problem.

The last findings from the Strategic Alignment survey are concerned with the way organisations move from strategy development to strategy implementation. These findings are not discussed in the literature review from this research but still provide useful insights and therefore will be mentioned here. Organisations do not frequently use a controlled language to communicate the strategy. They also do not frequently set the boundaries of strategic transformations. However, when the organisations do set the boundaries they are determined by the budget, the scope of the strategy, time, management, and objectives. The intent behind strategic plans is by almost half of the organisations frequently communicated. They use several communication channels such as intranet, presentations, e-mail, newsletters, or video's. Usually some kind of meeting is held in which management communicates the intent. A larger part of the organisations, near 50%, aligns different values and goals to one common (strategic goal). These personal values and goals are aligned by defining personal target objectives or by defining values. Training and education are also used to make sure that the values and goals are aimed towards one common (strategic) goal. Organisations do frequently recognise the need for collaboration between stakeholders. However, they are not that successful in tracing interdependencies between stakeholders. When organisations do recognise interdependencies it is mostly done ad-hoc or informal with the use of common knowledge and understanding. Some organisations use formal methods like the stakeholder interdependencies matrix, stakeholder analysis, Project and Portfolio management, or mapping. Necessary changes and actions are frequently defined by organisations through Project and Program management, usually by the management. Several tools are used to

define changes and actions such as roadmaps, discussions, and gap analyses. A large part of the organisations have no vertical traceability of how strategic goals are translated into operations. The contribution of each project to reaching strategic goals is also not frequently communicated. When the contribution is communicated it goes through several channels like intranet, newsletters, e-mail, and presentations. Meetings are often held to communicate the contribution and the contribution is determined by the contribution to the KPIs or through project plans or milestones.

6.2. Conclusions

The sub-research questions of this research are answered throughout the research, which leaves only the main research question to be answered. The main research question, "*Why do organisations fail to develop and implement strategies successfully, and therefore fail to reach strategic alignment, and what do organisations have to improve to reach strategic alignment?*", can be answered by employing the answers on the sub-research questions. It is true that organisations fail to develop and implement a strategy successfully, and only a few organisations are able to reach a form of strategic alignment. The reason why organisations fail to reach strategic alignment has to do with certain variables influencing strategic alignment. The variables negatively influencing strategic alignment, also known as the constraints, are the reasons for organisations to fail strategic alignment. If one or more of the variables can play a role within the organisation then that organisation would be limited to reach strategic alignment. However, there are also variables positively influencing strategic alignment, known as enablers. A negative and a positive variable can be two different sides of one and the same indicator. Therefore, if the organisation could transform a negative variable into a positive variable it will support the reaching of strategic alignment. The five main variables which have a negative influence on reaching strategic alignment are as follows:

1. The impact of the strategy on the employees is not known.
2. Priorities regarding reaching strategic goal(s) are conflicting.
3. Long-term goals are unsuccessfully translated into short-term objectives.
4. The majority of the organisation does not understand the strategy.
5. Employees have no understanding of the expected actions.

If one or more of these variables, or the other identified variables negatively influencing strategic alignment, are present within the organisation it will obstruct the organisation in reaching strategic alignment. In an organisation where there are those kinds of problems during the strategy process it is impossible to reach strategic alignment. However, if an organisation knows that they experience some of these problems it could make efforts to turn the negative variable into a positive one. For example, when an organisation knows that the impact of a strategy is not known it could develop communication plans to make the intent known to its employees. Consequently, the following variables influence strategic alignment positively and are known as enablers:

1. The impact of the strategy on the employees is known.
2. Priorities regarding reaching strategic goal(s) are not conflicting.
3. Long-term goals are successfully translated into short-term objectives.
4. The majority of the organisation understands the strategy.
5. Employees have understanding of the expected actions.

There are more enablers mentioned in the research which could lead to a better state for the organisation and lead the organisation closer to strategic alignment. With the use of the Strategic Alignment survey it is tried to find a solution to the following problem statement:

Without an analysis of the efforts and experiences of organisations regarding strategic alignment there is no way to tell what is causing organisations to fail in developing and implementing their strategies.

The efforts and experiences of organisations regarding strategic alignment are unravelled in this research. Organisations do not use strategy techniques or methods frequently to support strategy development and strategy implementation. Their efforts to strategic alignment are still scarce and not what is should be. However, many of the organisations are open-minded towards the use of a software tool to support strategy development and strategy implementation when a good tool is available. This willingness might be the result of the experiences of organisations with trying to reach strategic alignment. From the data of the Strategic Alignment survey is confirmed that only a few organisations experience a form of strategic alignment and a large part is still operating in the dark. Organisations experience many problems with strategy development, strategy implementation, or both. The experiences of the organisations reveal which variables have a negative influence on strategic alignment. This information can be used to make the organisations aware of which pitfalls to avoid for trying to reach strategic alignment. The five largest negative influences are mentioned above, as well as the five variables which can enable an organisation to reach strategic alignment.

6.2.1. Limitations of the research

Survey research has several limitations simply because of the data collection methods used. The first limitation is that this research is conducted at one-point in time which restricts the reliability of the results. Whether another research at a different point in time will yield the same results is not known. To make sure that the research is as reliable as possible some steps were taken, which are mentioned in paragraph 4.3.1. An actual cause and effect relationship cannot be found with a research at one-point in time. Therefore, this is a limitation to this research since actual causal relationships are not found.

Another limitation results from the biases that are the result of using a questionnaire as the data collection method. According to Saunders et al., (2009) there could be subject or participant bias, which is a bias that occurs when respondents give inaccurate responses. This could be because of a lack of knowledge or because they intentionally want to distort the results. Another reason could be that respondents say what they think that their managers want to here. However, since it is an anonymous questionnaire this is highly unlikely. The results from the questionnaire are entirely based on the opinions and answers of the respondents. This research trusts on the judgement of the respondents to give the answers that best represent the situation of their organisation.

The third limitation is that the response rate is relative low, which is the result of using an internet-mediated questionnaire. The respondents are not personally reached which makes it easier for them to dismiss the request for participation. Another factor influencing the low response rate is that specific knowledge is required for participating which might have scared some potential participants to not respond. A high response rate would have made the results more conclusive and reliable.

The last limitation of the research is that there were not enough responses to be able to generalise the findings to other regions. While it was tried to get as much respondents from all regions some of the regions were barely reached which makes it not possible to make generalisations for those regions.

6.2.2. Recommendations for future research

This research tries to gather as much information possible on strategic alignment and the variables influencing it. In this case a literature review is used and a questionnaire is developed based on this literature review to complement the theoretical knowledge with practical experiences. With the use of questionnaire as the data collection method it is possible that some variables are not acknowledged since the use of pre-determined questions limits the answer possibilities of respondents. It is recommended to have in-depth interviews with some experts in the field to assess whether there are variables influencing strategic alignment which are not acknowledged in the current scientific literature or in the findings of this research. The in-depth interviews will also make it possible to gather more detailed information which might lead to deeper understanding about strategic alignment.

Further research could explore those findings for which a cause was not found in this research. Among others, the reason why managers are more optimistic and architects are pessimistic about the problems during strategy development and strategy implementation might be interesting to examine. These findings indicate that the function groups are not on one line and that there might be misunderstanding between the groups. There could be room for improvement for organisations once they know what the reasons are behind these differences. Strategic alignment is about creating understanding, involvement and creating a fit which cannot be done when there is no mutual agreement between several function groups.

Another finding suggested that organisations are more than willing to explore the possibilities of a software tool for supporting strategy development and strategy implementation, when a sufficient one is available. Future research should explore what the market and thus the organisations expect from such a tool. By exploring the expectations of the organisations it could help the actual development of a useful software tool.

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Appendix A - Variables influencing strategic alignment

Table 22 - Constraints of strategic alignment

Five impeders of implementation (Ali & Hadi, 2012)	**Implementation problems** (Alexander, 1985)	**The ten most important pitfalls** (Steiner, 1979)	**Fragmentations** (Thompson & Martin, 2010)
Individual impeders:	Implementation took more time than originally allocated	Top management's assumption that it can delegate the planning function to a planner	Weak decision making / leadership (people)
People and employee's inadequate understanding of the business strategies	Capabilities of employees involved were not sufficient	Failure to use plans as standards for measuring managerial performance	Irrational decision-making (processes)
Employees fear of endangerment of their job security because of strategy implementation	Coordination of implementation activities was not effective enough	Failure to develop company goals suitable as a basis for formulating long-range plans	Lack of clear purpose
Consequences planning impeders:	Competing activities and crises distracted attention from implementing this decision	Failure to assume the necessary involvement in the planning process of major line personnel	Conflicting perspectives and interests
Insufficient consensus among decision makers and business strategy executers	Major problems surfaced during implementation that had not been identified beforehand	Top management spends insufficient time on long-range planning, and the process becomes discredited among other managers and staff	Dissolution and absolution of problems instead of resolution and solution
Improper conversion of business strategies plans to short term and operational plans	Training and instruction given to lower level employees were not adequate	Failure to create a climate in the company which is congenial and not resistant to planning	Rigidity, reluctance to change and negative politics
Organisation impeders:	Uncontrollable factors in the external environment had an adverse impact on implementation	Assuming that corporate comprehensive planning is some-thing separate from the entire management process	Over-hasty decisions which are difficult to implement
Lack of proper information systems: information technology, management information system and system applied for knowledge management	Leadership and direction provided by departmental managers were not adequate enough	Injecting so much formality into the system that it lacks flexibility, looseness, and simplicity, and restrains creativity	Unhelpful personal objectives
Organisation's culture and structure are inconsistent and non-conforming with the strategy	Key implementation tasks and activities were not defined in enough detail	Failure of top management to review with departmental and divisional heads the long-range plans, which they have developed	Inadequate measurement and control
Environmental impeders:	Information systems used to monitor implementation were not adequate	Top management's rejecting the planning mechanism by making intuitive decisions, which conflict with the formal plans	Managers' inability to take a holistic perspective
Lack of proper attention to the effects of competitive environment in developing and implementing a strategy			
Lack to consider political, cultural, social, economic, and regulatory obstacles			
Management impeders:			
Managers' inadequate understanding of company strategies and future outlook			
Inadequate attention and support of managers towards the implementation of a strategy			

Table 22 - Constraints of strategic alignment (continued)

Five obstacles (Hrebiniak, 2006)	**Seven deadly sins** (Elquist LoRé, 2012)	**Seven deadly sins** (Corboy & Corrbui, 2007)	**The six silent killers** (Beer & Eisenstat, 2000)
Managers are trained to plan, not to execute Let the "grunts" handle execution Planning and execution are interdependent Implementation is a process that takes longer than formulation Execution involves more people than strategy formulation	Annual goals are not properly integrated into budgets Top leadership does not embrace strategy Customers don't really count as stakeholders Insufficient energy put toward communicating the plan Managers and staff are not involved in the process Departments don't work together Plans aren't actively used to guide decisions	People are not clear on how the strategy will be implemented The strategy is not worth implementing Customers and staff do not fully understand the strategy Individual responsibly for implementing the change is not clear Senior management step out of the picture once implementation begins The 'brick walls' are not recognised Forgetting to 'mind the shop'	Top-down or laissez-fair senior management style Unclear strategy and conflicting priorities An ineffective senior management team Poor vertical communication Poor coordination across functions, businesses, or borders Inadequate down-the-line leadership skills and development

Table 23 - Enablers of strategic alignment

6 Cs for strategy implementation (Dobni, 2003)	**9 factors of strategy implementation** (Li et al., 2010)	**Points for strategic alignment** (Vagadia, 2014)	**Ten traits for strategy implementation** (Neilson et al., 2008)	**The 8 'S's of strategy execution** (Higgins, 2005)	**Alignment Maturity Criteria** (Luftman, 2000)
Customer value is created	Adequate strategy formulation	A clear definition of purpose and the values and behaviours	Once made, decisions are rarely second-guessed	Strategy and purpose formulated	Scope and architecture of IT
Coalignment as the fit between culture, strategy and context	Relationships among units/ departments and strategy levels	An aligned culture: people need to fully buy into the organisational purpose	Everyone has a good idea of the decisions and actions for which he or she is responsible	Structure is shown and taken into account	Partnership between business and IT
Core competencies should make up and support the strategy	Executors of the strategy: management and non-management	Strategy is developed engaging all employees and all employees must be clear on the what, why, when and how of strategy	Field and line employees usually have the information they need to understand the bottom-line impact of their day-to-day choices	Systems and processes enable strategic activities day-to-day	Competencies and value measurements to assess performance
Connection of the employees to the vision and values	Communication of new responsibilities, tasks and duties	Clearly articulated strategic objectives that the organisation is striving to achieve	Information flows freely across organisational boundaries	Leadership style should be consistent	Governance to involve entire organisation
Culture as the collective thoughts and actions	Implementation tactics for making planned changes	A clear understanding of how strategies will be translated into action across the organisation.	Important information about the competitive environment gets to headquarters quickly	Staff – type of employees with right competencies	Skills include all human resources considerations
Communication between and within strategic business units	Consensus and shared understanding	Ensure that all activity and action within the organisation is supporting the achievement of strategic objectives	The individual performance-appraisal process differentiates among high, adequate, and low performers	Adequate resources for achieving the strategy	Communication by effective exchange of ideas and a clear understanding
	Commitment to the strategy	Making decisions about the strategic value of various activities undertaken and prioritise them	Managers up the line get involved in operating decisions	Shared values and cultural artefacts for leading change	
	Organisational structure aligned with strategy	People that do the work must be aligned: understanding about what contribution their work delivers to achieving strategic objectives.	The ability to deliver on performance commitments strongly influences career advancement and compensation	Strategic performance should be measured	
	Administrative systems	Creating and delivering strategy requires resources in terms of budgets, people, skills, systems	Line managers have access to the metrics needed to measure the key drivers of business		
			Conflicting messages are rarely sent to the market		

Appendix B - The survey

Strategic Alignment Survey

Thank you for participating in the Strategic Alignment Survey. This survey is intended to get a better understanding of the difficulties faced by organisations while developing and implementing a strategy. It will take approximately **15 minutes** to complete this survey.

Organisations develop and implement strategies to achieve (strategic) goals. The development of a strategy is about formulating what should be changed to evolve from the current situation to the desired future state. Implementation is about translating the strategic plans into clear actions to execute the strategy. **Strategic alignment** is the ability to create a fit or synergy between the position of the organisation within the environment (**business**) and the design of the appropriate business processes, resources and capabilities (**IT**) to support the execution.

We would like to know your personal opinion regarding your organisation's strategic alignment efforts. In return, you can receive the results of this survey, the book Strategizer - The method, and get a chance to win a book voucher worth €200,-. The responses on this survey are anonymous and your response will only be used in combination with other responses. The collection, storage and usage of responses are done while keeping your privacy in mind.

Instructions for completing the survey

- The survey consists of five parts in which your opinion is asked about your organisations experiences and efforts.
- Please select "Submit" at the end of the survey to make sure that your answers will be sent.

Part I – Information about you and your organisation

1. What is your function within your organisation?

☐ CEO/COO
☐ CTO/CIO/CSO/CFO
☐ Consultant
☐ Administration
☐ Human Resources
☐ Legal
☐Strategy
☐Portfolio manager
☐Program & Project manager
☐Managing Director/General Manager
☐VP
☐Governance, Risk & Compliance
☐Accounting, Finance & Procurement
☐Information Technology
☐Enterprise Architect
☐Research & Development
☐Marketing & Sales
☐Other, please specify:

……

2. How large is your organisation?

☐ < 50 employees
☐ 50 – 100 employees
☐ 101 – 200 employees
☐ 201 – 300 employees
☐ 301 – 400 employees
☐ 401 – 500 employees
☐ > 500 employees

3. In which industry is your organisation active? (Please select the category that best represents your industry)

☐ Agriculture, forestry and fishing
☐ Mining and quarrying
☐ Manufacturing
☐ Water supply
☐ Education
☐ Human health and social work activities
☐ Arts, entertainment and recreation
☐ Finance and insurance
☐ Real estate
☐ Other service activities
☐ Other, please specify:

……

☐ Professional, scientific and technical services
☐ Administrative and support services
☐ Electricity, gas, steam air conditioning supply
☐ Public administration and defence
☐ Construction
☐ Wholesale and retail trade
☐ Transportation and storage
☐ Accommodation and food service
☐ Information and communication
☐ Households as employers
☐ Extraterritorial organisations and bodies

4. In which region is your organisation located? (Multiple answers are possible)

☐ North, East, Central and West Africa
☐ South Africa
☐ North America
☐ Central America
☐ South America
☐ East and Southeast Asia
☐ North and Central Asia
☐ South Asia
☐ Australia/Oceania
☐ North Europe
☐ East Europe
☐ South Europe
☐ West Europe
☐ Middle East

5. What is your age?

☐ < 20
☐ 20 - 30
☐ 31 - 40
☐ 41 - 50
☐ 51 - 60
☐ > 60

6. What is your gender?

☐ Female
☐ Male

Part II – Your organisation's strategic alignment efforts

1. Which disciplines of your organisation are involved in developing the organisations strategies?

☐ Finance
☐ Legal
☐ Governance, Risk & Compliance
☐ Human Resources
☐Marketing & Sales
☐ Research & Development
☐ Portfolio Management
☐ Enterprise Architecture
☐Program & Project Management
☐Information Technology
☐Other, please specify:
……

2. Which disciplines of your organisation are involved in translating strategic plans to actions?

☐ Finance
☐ Legal
☐ Governance, Risk & Compliance
☐ Human Resources
☐Marketing & Sales
☐ Research & Development
☐ Portfolio Management
☐ Enterprise Architecture
☐Program & Project Management
☐Information Technology
☐Other, please specify:
……

3. Are you involved during the development of your organisation's strategies?

☐ never ☐ sometimes ☐ most of the times ☐ always ☐ n/a

4. Are you involved in the implementation of strategies (moving from strategic plan to execution)?

☐ never ☐ sometimes ☐ most of the times ☐ always ☐ n/a

5. Do you use strategy techniques or methods to support the development and implementation of strategies?

☐ never ☐ sometimes ☐ most of the times ☐ always ☐ n/a

If the answer is "never" go to question 11.

6. Which of the following techniques or methods are used during the development and implementation of strategies? (Multiple answers are possible)

☐ Balanced scorecard
☐ Blue Ocean Strategy
☐ Boston Consulting Group (BCG) matrix
☐ Business case
☐ Business Model canvas
☐ Confrontation matrix
☐ Critical success factors
☐ Dynamic capabilities
☐ Marketing mix
☐ McKinsey 7-S
☐ PEST analysis
☐ Porter's Five Forces analysis
☐ Porter's Value Chain
☐ Resource Based View
☐ Strategy map
☐ SWOT analysis
☐ The Strategy canvas
☐ TOWS matrix
☐ Quantitative planning matrix
☐ Other, please specify

……...

7. Which frameworks, methods, techniques or tools do you use to support strategy development and strategy implementation?

…….

8. Would you use software tools (when a good tool is available) to support the development and implementation of a strategy?

☐ Yes
☐ Maybe
☐ No

The following questions will be in the form of statements on which your opinion is asked regarding your organisation's experiences (select one of the given answers)

9. The strategies of your organisation are developed without any problems.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

10. The strategies of your organisation are implemented without any problems.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

11. The organisation fails to implement the developed strategy successfully.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

12. Strategy development and strategy implementation are seen as <u>one</u> process.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

13. During strategy development the majority of the organisation is represented.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

14. During strategy implementation the majority of the organisation is represented.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

15. During strategy development the <u>resources</u> of the organisation are taken into consideration.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

16. During strategy development the <u>capabilities</u> of the organisation are taken into consideration.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

17. During strategy implementation actions are defined according to strategic plans.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

<u>Part III – Three categories regarding strategic alignment</u>
Please give your personal opinion regarding your organisation's strategic alignment efforts.

1. ***Culture and shared beliefs***
Culture and shared beliefs concern the fit between the organisation's culture and the strategy. Most of all, it is about the mind-set within the organisation regarding strategic alignment.

1.1. There is an overall strategic goal(s).
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

1.2. The organisation works towards reaching the strategic goal(s).
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

1.3. There is collaboration within the organisation to reach the strategic goal(s).
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

1.4. Priorities regarding reaching strategic goal(s) are not conflicted.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

1.5. Individual contribution to strategy development is recognised.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

1.6. Individual contribution to strategy implementation is recognised.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

1.7. Within the organisation there is willingness to change.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

1.8. Strategic change is coordinated by management throughout the organisation.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

2. Organisational capabilities

Organisational capabilities refer to the importance of the fit between the organisation and the strategy. Among others, it considers how the organisation manages strategy development and implementation.

2.1. The strategy is in line with the organisation's capabilities.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

2.2. Long-term strategic goals are successfully translated into short-term objectives.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

2.3. Strategic objectives are sufficiently translated into clear actions.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

2.4. Actions and operations clearly contribute to the execution of the strategy.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

2.5. The strategy is supported by information systems.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

2.6. The progress of strategy development and implementation is monitored.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

2.7. The impact of the strategy on the organisation's performance is measured.

☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

2.8. Strategic plans are refined and adapted during implementation
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

2.9. The organisation has employees with the right competencies for reaching strategic goal(s).
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

2.10. Management is involved in strategy implementation.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

2.11. Management takes enough time to make well-considered strategic decisions.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

2.12. Management is able to motivate their strategic choices.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

3. Communication

Communication is about the importance of clear defined purposes, values and behaviours to guide the implementation process. Communication is about creating understanding throughout the organisation about the strategy.

3.1. There is a formalised strategy (defined and official).
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

3.2. There is clear communication of the strategy.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

3.3. The majority of the organisation understands the strategy.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

3.4. The impact of the strategy on the employees is widely known.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

3.5. Individual responsibilities for reaching the strategic goal(s) are known.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

3.6. Employees have a clear understanding of the actions expected from them.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

3.7. There is frequent communication of the strategy within the organisation.

☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

3.8. Strategic plans are communicated in time to the employees by management.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

3.9. Accurate information about strategic plans is provided by management.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

3.10. Employees can easily access information about strategic plans.
☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

Part IV – The way your organisation moves from strategy development to implementation

Please give your personal opinion to answer the questions regarding the way your organisation manages strategy development and implementation.

1. Is a controlled language (e.g. standard, framework) used to clearly communicate strategies?
☐ never ☐ sometimes ☐ most of the times ☐ always ☐ n/a

2. Are the boundaries of strategic plans and strategic transformations defined?
☐ never ☐ sometimes ☐ most of the times ☐ always ☐ n/a

3. How does your organisation define the boundaries of strategic transformation?

.....

.....

4. Is the reasoning behind strategic transformations consistently communicated?
☐ never ☐ sometimes ☐ most of the times ☐ always ☐ n/a

5. How does your organisation make sure that it consistently communicates the intent behind strategic plans?

.....

.....

6. Are different values and goals aligned to one common (strategic) goal?
☐ never ☐ sometimes ☐ most of the times ☐ always ☐ n/a

7. How does your organisation make sure that all the personal values and goals are aimed to one common (strategic) goal?

.....

.....

8. Is the need for collaboration between stakeholders (everyone involved in strategic transformation) recognised?

☐ never ☐ sometimes ☐ most of the times ☐ always ☐ n/a

9. Are interdependencies between stakeholders traceable across different domains within the organisation?

☐ never ☐ sometimes ☐ most of the times ☐ always ☐ n/a

10. How does your organisation recognise the interdependencies between stakeholders?

.....

.....

11. Are necessary changes and actions for reaching strategic goals defined?

☐ never ☐ sometimes ☐ most of the times ☐ always ☐ n/a

12. How does your organisation define the necessary changes and actions to reach the strategic goals?

.....

.....

13. Is there vertical traceability between management layers of how the strategic goals are translated into operations?

☐ never ☐ sometimes ☐ most of the times ☐ always ☐ n/a

14. Is the contribution of each project to reaching the strategic goals communicated (holistic view)?

☐ never ☐ sometimes ☐ most of the times ☐ always ☐ n/a

15. How does your organisation communicate the contribution of each action and project to reaching strategic goals?

.....

.....

Part V - Strategic decision making: expected return and risk of strategic alternatives

In the strategic decision making process a choice needs to be made about which strategy to pursue. Strategic alternatives can be assessed based on their expected return and risk. The financial benefits and possible risks from a strategy might influence the decision.

1. Do you evaluate the expected return of strategies when making strategic decisions?

☐ never ☐ sometimes ☐ most of the times ☐ always ☐ n/a

If the answer is "never" go to question 3.

2. Which of the following methods are used for evaluating the return of strategic alternatives? (Multiple answers are possible)

☐ Accounting rate of return/return on investment (ARR/ROI)
☐ Discounted payback period
☐ Earnings per share (EPS)
☐ Economic value added (EVA)
☐ Equivalent annuity
☐ Gross margin/operating margin/net profit margin
☐ Internal rate of return (IRR)
☐ Modified internal rate of return
☐ Net present value (NPV)
☐ Payback period
☐ Profitability index/benefit-cost ratio
☐ Price-Earnings Ratio
☐ Market-to-Book Ratio
☐ Return on assets (ROA)
☐ Return on equity (ROE)
☐ Other, please specify:

……..

3. Do you evaluate the associated risk of strategies when making strategic decisions?

☐ never ☐ sometimes ☐ most of the times ☐ always ☐ n/a

If the answer is "never" go to question 5.

4. Which of the following methods are used for evaluating the risk of strategic alternatives? (Multiple answers are possible)

☐ Adjusting discount rate
☐ Adjusting forecasted cash flows
☐ Beta analysis
☐ Certainty equivalents
☐ Fuzzy sets
☐ Monte-Carlo simulation
☐ Probability analysis: decision-trees
☐ Real options valuation
☐ Scenario analysis
☐ Sensitivity analysis
☐ Other, please specify:

……

5. Do you think that it is useful to evaluate the expected return of strategies when making strategic decisions?

☐ Yes

☐ Maybe

☐ No

6. Do you think that it is useful to evaluate the expected risk of strategies when making strategic decisions?

☐ Yes

☐ Maybe

☐ No

The following questions will be in the form of statements on which your opinion is asked regarding your organisation's experiences (select one of the given answers)

7. Return is sufficiently taken into consideration when making strategic decisions.

☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

8. Risks are sufficiently taken into consideration when making strategic decisions.

☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

9. Strategic alternatives are sufficiently compared on their financial return.

☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

10. Strategic alternatives are sufficiently compared on their associated risk.

☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree ☐ n/a

If you have any additional comments or suggestions you would like to share, please write them in the provided field below.

.....

.....

.....

Do you want to receive the results of this survey, the book Strategizer - The method, and get a chance to win a book voucher worth €50,-? (Please leave your e-mail behind when you choose "Yes")

☐ Yes: …….

☐ No

Thank you for your time and effort.

Appendix C - The codebook

Table 24 - Codebook of the questionnaire

Survey Item	Question	Answers	
FUN	What is your function?	1 = CEO/COO	11 = Legal
		2 = Managing Director /General Manager	12 = Enterprise Architect
		3 = CTO/CIO/CSO/CFO	13 = Strategy
		4 = VP	14 = Research & Development
		5 = Consultant	15 = Portfolio manager
		6 = Governance, Risk & Compliance	16 = Marketing & Sales
		7 = Administration	17 = Program & Project manager
		8 = Accounting, Finance & Procurement	18 = Professor
		9 = Human Resources	19 = Other, please specify:
		10 = Information Technology	
	FUN1 Other, please specify:	Input	
SIZ	How large is your organisation?	1 = < 50 employees	5 = 301 – 400 employees
		2 = 50 – 100 employees	6 = 401 – 500 employees
		3 = 101 – 200 employees	7 = > 500 employees
		4 = 201 – 300 employees	
IND	In which industry is your organisation active?	0 = False	1 = True
	IND1 Agriculture, forestry and fishing	IND12	Wholesale and retail trade
	IND2 Professional, scientific and technical services	IND13	Arts, entertainment and recreation
	IND3 Mining and quarrying	IND14	Transportation and storage
	IND4 Administrative and support services	IND15	Finance and insurance
	IND5 Manufacturing	IND16	Accommodation and food service
	IND6 Electricity, gas, steam air conditioning supply	IND17	Real estate
	IND7 Water supply	IND18	Information and communication
	IND8 Public administration and defence	IND19	Other service activities
	IND9 Education	IND20	Households as employers
	IND10 Construction	IND21	Extraterritorial organisations
	IND11 Human health and social work activities	IND22	Other, please specify:
	IND23 Other, please specify:	Input	

REG	In which region is your organisation located?	0 = False		1 = True	
	REG1	North, East, Central and West Africa	REG8	East Europe	
	REG2	South Asia	REG9	South America	
	REG3	South Africa	REG10	South Europe	
	REG4	Australia/Oceania	REG11	East and Southeast Asia	
	REG5	North America	REG12	West Europe	
	REG6	North Europe	REG13	North and Central Asia	
	REG7	Central America	REG14	Middle East	
AGE	What is your age?	1 = < 20		3 = 31 – 40	5 = 51 – 60
		2 = 20 – 30		4 = 41 – 50	6 = > 60
GEN	What is your gender?	1 = Female		2 = Male	

	Experiences and efforts regarding strategic alignment				
DID	Which disciplines are involved in developing the strategies?			0 = False	1 = True
	DID1	Finance	DID7	Human Resources	
	DID2	Portfolio Management	DID8	Information Technology	
	DID3	Legal	DID9	Marketing & Sales	
	DID4	Enterprise Architecture	DID10	Research & Development	
	DID5	Governance, Risk & Compliance	DID11	Other, please specify:	
	DID6	Program & Project Management			
	DID12	Other, please specify:		Input	
DIT	Which disciplines are involved in translating strategic plans to actions?			0 = False	1 = True
	DIT1	Finance	DIT7	Human Resources	
	DIT2	Portfolio Management	DIT8	Information Technology	
	DIT3	Legal	DIT9	Marketing & Sales	
	DIT4	Enterprise Architecture	DIT10	Research & Development	
	DIT5	Governance, Risk & Compliance	DIT11	Other, please specify:	
	DIT6	Program & Project Management			
	DIT12	Other, please specify:		Input	

IDS	Are you involved in the development of strategies?			1 = never	4 = always
IIS	Are you involvement in the implementation of strategies?			2 = sometimes	5 = n/a
UST	Do you use strategy techniques or methods to support the development and implementation of strategies?			3 = most of the times	
Use	Which techniques or methods are used during developing and implementing strategies?			0 = False	1 = True
	Use1	Balanced scorecard	Use8	Dynamic capabilities	Use15 Strategy map
	Use2	Blue Ocean Strategy	Use9	Marketing mix	Use16 SWOT analysis
	Use3	Boston Consulting Group (BCG) matrix	Use10	McKinsey 7-S	Use17 The Strategy canvas
	Use4	Business case	Use11	PEST analysis	Use18 TOWS matrix
	Use5	Business Model canvas	Use12	Porter's Five Forces analysis	Use19 Quantitative planning matrix
	Use6	Confrontation matrix	Use13	Porter's Value Chain	Use20 Other, please specify:
	Use7	Critical success factors	Use14	Resource Based View	
	Use21	Other, please specify			Input
SDI	Which frameworks, methods, techniques or tools support development and implementation?			1 = Yes	3 = No
				2 = Maybe	
WDI	Would you use software tools to support development and implementation of strategies?				

STA	***Strategic alignment***	
STA1	The strategies are developed without any problems.	1 = strongly disagree
STA2a	The strategies are implemented without any problems.	2 = disagree
STA3	Strategy development and implementation are seen as one process.	3 = neutral
STA4a	The majority of organisation is represented during development.	4 = agree
STA4b	The majority of organisation is represented during implementation.	5 = strongly agree
STA5a	During strategy development the resources are considered.	6 = n/a
STA5a	During strategy development the capabilities are considered.	
STA6	During strategy implementation actions are defined according to strategic plans.	

Variables influencing strategic alignment		
CSB	***Culture and shared beliefs***	
CSB1	There is a common strategic goal(s).	1 = strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree 6 = n/a
CSB2	The organisation works toward reaching the strategic goal(s).	
CSB3	There is collaboration to reach strategic goal(s).	
CSB4	Priorities regarding reaching strategic goal(s) are not conflicting.	
CSB5a	Individual contribution to strategy development is recognised.	
CSB5b	Individual contribution to strategy implementation is recognised.	
CSB6	Within the organisation there is willingness to change.	
CSB7	Strategic change is coordinated by management.	
ORC	***Organisational capabilities***	
ORC1	The strategy is in line with the organisation's capabilities.	1 = strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree 6 = n/a
ORC2a	Long-term strategic goals are successfully translated into short-term objectives.	
ORC2b	Strategic objectives are sufficiently translated into clear actions.	
ORC3	Actions clearly contribute to the execution of the strategy.	
ORC4	The strategy is supported by existing information systems.	
ORC5a	The progress of development and implementation is monitored.	
ORC5b	The impact of the strategy on performance is measured.	
ORC6	Strategic plans are refined and adapted during implementation.	
ORC7	Employees have the right competencies for reaching goal(s).	
ORC8	Management is involved in strategy implementation.	
ORC9	Management takes enough time for well-informed decisions.	
ORC10	Management is able to motivate their strategic choices.	
COM	***Communication***	
COM1	There is a formalised strategy (defined and official).	1 = strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree 6 = n/a
COM2	There is clear communication of strategy.	
COM3	The majority of the organisation understands the strategy.	
COM4	The impact of the strategy on the employees is widely known.	
COM5	Responsibilities for reaching strategic goal(s) are known.	
COM6	Employees have clear understanding of the expected actions.	
COM7a	There is frequent communication of the strategy.	
COM7b	Strategic plans are communicated in time to the employees.	
COM7c	Accurate information about strategic plans is provided.	
COM7d	Employees can easily access information about strategic plans.	

	The way organisations move from strategy development to strategy implementation		
CLC BSD	Is a controlled language used for communicating strategies? Are the boundaries of strategic plans and transformations defined?	1 = strongly disagree 2 = disagree 3 = neutral	4 = agree 5 = strongly agree 6 = n/a
HBD	How are boundaries of strategic transformations defined?	Input	
RBS	Is the reasoning behind strategic transformations consistently communicated?	1 = strongly disagree 2 = disagree 3 = neutral	4 = agree 5 = strongly agree 6 = n/a
HIB	How is the intent behind strategic plans consistently communicated?	Input	
DVG	Are different values and goals aligned to one common (strategic) goal?	1 = strongly disagree 2 = disagree 3 = neutral	4 = agree 5 = strongly agree 6 = n/a
HPV	How are personal values and goals aimed to one common (strategic) goal?	Input	
NCS UST	Is the need for collaboration between stakeholders recognised? Are interdependencies between stakeholders traceable across different domains?	1 = strongly disagree 2 = disagree 3 = neutral	4 = agree 5 = strongly agree 6 = n/a
HIS	How are interdependencies between stakeholders recognised?	Input	
NCA	Are necessary changes and actions for reaching strategic goals defined?	1 = strongly disagree 2 = disagree 3 = neutral	4 = agree 5 = strongly agree 6 = n/a
HNC	How are the necessary changes and actions to reach the strategic goal(s) defined?	Input	
VTM CPC	Is there vertical traceability between management layers of how strategic goals are translated into operations? Is the contribution of each project to reaching strategic goals communicated?	1 = strongly disagree 2 = disagree 3 = neutral	4 = agree 5 = strongly agree 6 = n/a
HCP	How is the contribution of a project to reaching strategic goals communicated?	Input	

	Return and risk				
ERD	Is the expected return of strategies evaluated when making strategic decisions?			1 = never 2 = sometimes 3 = most of the times	4 = always 5 = n/a
ERA	Which methods are used to evaluate the expected return of strategic alternatives?			0 = False	1 = True
	ERA1	Accounting rate of return/return on investment (ARR/ROI)	ERA9	Net present value (NPV)	
	ERA2	Discounted payback period	ERA10	Payback period	
	ERA3	Earnings per share (EPS)	ERA11	Profitability index/benefit-cost ratio	
	ERA4	Economic value added (EVA)	ERA12	Price-Earnings Ratio	
	ERA5	Equivalent annuity	ERA13	Market-to-Book Ratio	
	ERA6	Gross margin/operating margin/net profit margin	ERA14	Return on assets (ROA)	
	ERA7	Internal rate of return (IRR)	ERA15	Return on equity (ROE)	
	ERA8	Modified internal rate of return	ERA16	Other, please specify:	
	ERA17	Other, please specify:		Input	
ARD	Is the associated risk of strategies evaluated when making strategic decisions?			1 = never 2 = sometimes 3 = most of the times	4 = always 5 = n/a
ARA	Which methods are used to evaluate the associated risk of strategic alternatives?			0 = False	1 = True
	ARA1	Adjusting discount rate	ARA7	Probability analysis: decision-trees	
	ARA2	Adjusting forecasted cash flows	ARA8	Real options valuation	
	ARA3	Beta analysis	ARA9	Scenario analysis	
	ARA4	Certainty equivalents	ARA10	Sensitivity analysis	
	ARA5	Fuzzy sets	ARA11	Other, please specify:	
	ARA6	Monte-Carlo simulation	ARA	Probability analysis: decision-trees	
	ARA12	Other, please specify:		Input	
UER UAR	Is it useful to evaluate the expected return for strategic decisions? Is it useful to evaluate the expected risk for strategic decisions?			1 = Yes 2 = Maybe	3 = No
RAR	***Return and risk***				
RAR1	Return is sufficiently taken into consideration when making strategic decisions.			1 = strongly disagree 2 = disagree 3 = neutral	4 = agree 5 = strongly agree 6 = n/a
RAR2	Risks are sufficiently taken into consideration when making strategic decisions.				
RAR3	Strategic alternatives are sufficiently compared on their financial return.				
RAR4	Strategic alternatives are sufficiently compared on their associated risk.				

Appendix D - Correlation between indicators

Table 25 - Correlation between the STA indicators and the CSB indicators

		STA3	STA4a	STA4b	STA5a	STA5b	STA6	CSB1	CSB2	CSB3	CSB4	CSB5a	CSB5b	CSB6	CSB7
STA3	Correlation Coefficient	1.000													
	Sig. (1-tailed)														
STA4a	Correlation Coefficient	.181**	1.000												
	Sig. (1-tailed)	.009													
STA4b	Correlation Coefficient	.101	.489**	1.000											
	Sig. (1-tailed)	.094	.000												
STA5a	Correlation Coefficient	.187**	.305**	.319**	1.000										
	Sig. (1-tailed)	.008	.000	.000											
STA5b	Correlation Coefficient	.189**	.348**	.315**	.657**	1.000									
	Sig. (1-tailed)	.006	.000	.000	.000										
STA6	Correlation Coefficient	.188**	.200**	.289**	.311**	.366**	1.000								
	Sig. (1-tailed)	.007	.004	.000	.000	.000									
CSB1	Correlation Coefficient	.167*	.349**	.375**	.388**	.482**	.305**	1.000							
	Sig. (1-tailed)	.014	.000	.000	.000	.000	.000								
CSB2	Correlation Coefficient	.079	.253**	.331**	.354**	.412**	.349**	.633**	1.000						
	Sig. (1-tailed)	.150	.000	.000	.000	.000	.000	.000							
CSB3	Correlation Coefficient	.126*	.284**	.401**	.387**	.475**	.357**	.512**	.657**	1.000					
	Sig. (1-tailed)	.049	.000	.000	.000	.000	.000	.000	.000						
CSB4	Correlation Coefficient	.160*	.214**	.320**	.189**	.270**	.264**	.297**	.307**	.446**	1.000				
	Sig. (1-tailed)	.018	.002	.000	.007	.000	.000	.000	.000	.000					
CSB5a	Correlation Coefficient	.238**	.266**	.362**	.360**	.294**	.371**	.414**	.329**	.320**	.227**	1.000			
	Sig. (1-tailed)	.001	.000	.000	.000	.000	.000	.000	.000	.000	.001				
CSB5b	Correlation Coefficient	.230**	.206**	.299**	.371**	.289**	.376**	.420**	.340**	.307**	.295**	.679**	1.000		
	Sig. (1-tailed)	.001	.003	.000	.000	.000	.000	.000	.000	.000	.000	.000			
CSB6	Correlation Coefficient	.246**	.095	.169*	.244**	.355**	.320**	.379**	.362**	.498**	.328**	.253**	.245**	1.000	
	Sig. (1-tailed)	.001	.107	.013	.001	.000	.000	.000	.000	.000	.000	.000	.001		
CSB7	Correlation Coefficient	.167*	.365**	.347**	.454**	.500**	.396**	.442**	.454**	.538**	.398**	.477**	.316**	.371**	1.000
	Sig. (1-tailed)	.014	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	

*. Correlation is significant at the 0.05 level (1-tailed). **. Correlation is significant at the 0.01 level (1-tailed).

Appendix E - Analysis of the data resulting from the questionnaire

Table 26 - Data on the influence of involvement on recognition problems

The influence of involvement on the recognition of problems						
	The strategies are developed without any problems.					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	n/a
Never/sometimes involved during development	8.77%	50.88%	28.95%	9.65%	0.00%	1.75%
Most of the times/always involved during development	10.17%	38.98%	27.12%	20.34%	3.39%	1.69%
Never/sometimes involved during implementation	12.07%	46.55%	29.31%	10.34%	0.00%	1.72%
Most of the times/always involved during implementation	6.96%	47.83%	27.83%	14.78%	1.74%	0.87%
	The strategies are implemented without any problems.					
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	n/a
Never/sometimes involved during development	18.42%	64.91%	13.16%	3.51%	0.00%	0.00%
Most of the times/always involved during development	13.56%	44.07%	28.81%	11.86%	1.69%	0.00%
Never/sometimes involved during implementation	22.41%	62.07%	13.79%	1.72%	0.00%	0.00%
Most of the times/always involved during implementation	13.04%	56.52%	20.87%	8.70%	0.87%	0.00%

Table 27 - Data on the use of strategy techniques

Use of strategy techniques or methods		
	N	Percent
Never	21	12.1%
Sometimes	70	40.5%
Most of the times	48	27.7%
Always	29	16.8%
N/a	5	2.9%

Table 28 - Data on the use of strategy techniques and methods

Use of strategy techniques or methods		
	N	Percent of Cases
Balanced scorecard	74	48.1%
Blue Ocean Strategy	13	8.4%
Boston Consulting Group (BCG) matrix	26	16.9%
Business case	114	74.0%
Business Model canvas	50	32.5%
Confrontation matrix	6	3.9%
Critical success factors	68	44.2%
Dynamic capabilities	8	5.2%
Marketing mix	16	10.4%
McKinsey 7-S	18	11.7%
PEST analysis	22	14.3%
Porter's Five Forces analysis	28	18.2%
Porter's Value Chain	38	24.7%
Resource Based View	13	8.4%
Strategy map	58	37.7%
SWOT analysis	124	80.5%
The Strategy canvas	8	5.2%
TOWS matrix	8	5.2%
Quantitative planning matrix	8	5.2%
Other, please specify:	15	9.7%

Table 29 - Data on the desire to use software tools

Whether software tools will be used (when a good tool is available) to support the development and implementation of strategies		
	N	Percent
Yes	75	42.9%
Maybe	83	47.4%
No	17	9.7%

Table 30 - Data about the indicators for strategic alignment (STA)

Indicators for strategic alignment (STA)							
		Strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly agree**	**n/a**
STA1	The strategies are developed without any problems.	9.1%	46.9%	28.0%	13.1%	11.0%	1.7%
STA2	The strategies are implemented without any problems.	16.6%	57.7%	18.3%	6.3%	0.6%	0.6%
STA3	Strategy development and implementation are seen as one process.	11.0%	44.5%	19.1%	19.1%	3.5%	2.9%
STA4a	The majority of organisation is represented during development.	9.9%	36.6%	20.3%	27.9%	4.7%	0.6%
STA4b	The majority of organisation is represented during implementation.	4.0%	25.3%	21.8%	40.8%	6.3%	1.7%
STA5a	During strategy development the resources are considered.	5.3%	19.5%	18.9%	41.4%	13.6%	1.2%
STA5b	During strategy development the capabilities are considered.	4.0%	16.0%	24.6%	40.6%	13.7%	1.1%
STA6	During strategy implementation actions are defined according to strategic plans.	3.4%	12.1%	24.1%	50.6%	8.0%	1.7%

Table 31 - Data about the indicators for culture and shared beliefs (CSB)

Indicators for culture and shared beliefs (CSB)							
		Strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly agree**	**n/a**
CSB1	There is a common strategic goal(s).	3.4%	11.4%	20.0%	48.6%	16.0%	0.6%
CSB2	The organisation works toward reaching the strategic goal(s).	1.1%	8.6%	20.0%	56.0%	13.7%	0.6%
CSB3	There is collaboration to reach strategic goal(s).	3.4%	17.1%	25.1%	43.4%	10.3%	0.6%
CSB4	Priorities regarding reaching strategic goal(s) are not conflicting.	10.3%	54.3%	22.9%	10.3%	1.7%	0.6%
CSB5a	Individual contribution to strategy development is recognised.	4.6%	19.4%	33.7%	34.3%	5.1%	2.9%
CSB5b	Individual contribution to strategy implementation is recognised.	4.6%	14.3%	32.0%	40.6%	7.4%	1.1%
CSB6	Within the organisation there is willingness to change.	2.3%	21.1%	29.1%	38.3%	8.6%	0.6%
CSB7	Strategic change is coordinated by management.	4.6%	22.9%	25.1%	35.4%	11.4%	0.6%

Table 32 - Data about the indicators for organisational capabilities (ORC)

Indicators for organisational capabilities (ORC)							
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	n/a
ORC1	The strategy is in line with the organisation's capabilities.	1.7%	22.9%	31.4%	37.7%	5.7%	0.6%
ORC2a	Long-term goals are successfully translated into short-term objectives.	4.6%	30.9%	31.4%	29.7%	2.9%	0.6%
ORC2b	Strategic objectives are sufficiently translated into clear actions.	5.1%	29.1%	29.7%	32.6%	2.9%	0.6%
ORC3	Actions clearly contribute to the execution of the strategy.	0.6%	24.6%	40.6%	26.9%	6.9%	0.6%
ORC4	The strategy is supported by existing information systems.	8.0%	43.1%	27.6%	17.8%	2.9%	0.6%
ORC5a	The progress of development and implementation is monitored.	4.0%	20.6%	21.1%	42.9%	9.1%	2.3%
ORC5b	The impact of the strategy on performance is measured.	10.9%	24.0%	20.6%	36.0%	5.7%	2.9%
ORC6	Strategic plans are refined and adapted during implementation.	4.0%	18.3%	22.9%	45.7%	7.4%	1.7%
ORC7	Employees have the right competencies for reaching goal(s).	3.4%	24.6%	30.3%	36.6%	4.6%	0.6%
ORC8	Management is involved in strategy implementation.	1.1%	6.9%	17.8%	56.3%	17.2%	0.6%
ORC9	Management takes enough time for well-informed decisions.	5.1%	22.9%	32.6%	31.4%	5.7%	2.3%
ORC10	Management is able to motivate their strategic choices.	3.4%	21.1%	27.4%	41.1%	6.3%	0.6%

Table 33 - Data about the indicators for communication (COM)

Indicators for communication (COM)							
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	n/a
COM1	There is a formalised strategy (defined and official).	3.4%	14.9%	10.3%	48.6%	21.7%	1.1%
COM2	There is clear communication of strategy.	5.1%	18.3%	19.4%	45.7%	9.7%	1.7%
COM3	The majority of the organisation understands the strategy.	5.7%	29.9%	29.3%	29.9%	4.0%	1.1%
COM4	The impact of the strategy on the employees is widely known.	8.6%	36.6%	25.1%	25.1%	2.9%	1.7%
COM5	Responsibilities for reaching strategic goal(s) are known.	7.5%	37.9%	25.9%	25.3%	2.3%	1.1%
COM6	Employees have clear understanding of the expected actions.	5.7%	33.1%	32.6%	22.3%	4.6%	1.7%
COM7a	There is frequent communication of the strategy.	6.9%	22.4%	24.7%	37.9%	6.9%	1.1%
COM7b	Strategic plans are communicated in time to the employees.	8.6%	21.7%	27.4%	36.6%	4.0%	1.7%
COM7c	Accurate information about strategic plans is provided.	5.2%	28.3%	35.3%	25.4%	4.6%	1.2%
COM7d	Employees can easily access information about strategic plans.	10.3%	26.4%	24.1%	34.5%	2.9%	1.7%

Table 34 - Data about the way organisations move from development to implementation

The way organisations move from development to implementation						
		Never	**Sometimes**	**Most of the times**	**Always**	**n/a**
Is a controlled language (e.g. standard, framework) used to clearly communicate strategies?	N	44	66	40	17	8
	Percent	25.1%	37.7%	22.9%	9.7%	4.6%
Are the boundaries of strategic plans and strategic transformations defined?	N	29	79	45	10	12
	Percent	16.6%	45.1%	25.7%	5.7%	6.9%
Is the reasoning behind strategic transformations consistently communicated?	N	13	82	56	22	2
	Percent	7.4%	46.9%	32.0%	12.6%	1.1%
Are different values and goals aligned to one common (strategic) goal?	N	14	74	63	13	9
	Percent	8.1%	42.8%	36.4%	7.5%	5.2%
Is the need for collaboration between stakeholders recognised?	N	6	59	62	40	7
	Percent	3.4%	33.9%	35.6%	23.0%	4.0%
Are interdependencies between stakeholders traceable across different domains within the organisation?	N	29	78	44	12	12
	Percent	16.6%	44.6%	25.1%	6.9%	6.9%
Are necessary changes and actions for reaching strategic goals defined?	N	9	72	70	15	8
	Percent	5.2%	41.4%	40.2%	8.6%	4.6%
Is there vertical traceability between management layers of how the strategic goals are translated into operations?	N	25	79	44	15	10
	Percent	14.5%	45.7%	25.4%	8.7%	5.8%
Is the contribution of each project to reaching the strategic goals communicated (holistic view)?	N	24	65	37	19	4
	Percent	16.1%	43.6%	24.8%	12.8%	2.7%

Table 35 - Data about the indicators influencing strategic alignment

Strategic alignment indicators	No strategic alignment	Strategic alignment (partial or full)	Difference
Strategy development and implementation are seen as one process.	57.8%	47.2%	10.6%
The majority of organisation is represented during development.	54.1%	30.6%	23.5%
The majority of organisation is represented during implementation.	36.7%	8.3%	**28.4%**
During strategy development the resources are considered.	27.8%	11.1%	16.7%
During strategy development the capabilities are considered.	24.5%	2.8%	21.7%
During strategy implementation actions are defined according to strategic plans.	17.8%	2.8%	15.0%
Culture and shared beliefs			
There is a common strategic goal(s).	22.3%	0.0%	22.3%
The organisation works toward reaching the strategic goal(s).	15.5%	0.0%	15.5%
There is collaboration to reach strategic goal(s).	26.7%	5.6%	21.1%
Priorities regarding reaching strategic goal(s) are not conflicting.	71.1%	27.8%	**43.3%**
Individual contribution to strategy development is recognised.	32.3%	8.3%	24.0%
Individual contribution to strategy implementation is recognised.	27.8%	5.6%	22.2%
Within the organisation there is willingness to change.	26.6%	8.3%	18.3%
Strategic change is coordinated by management.	38.9%	2.8%	36.1%
Organisational capabilities			
The strategy is in line with the organisation's capabilities.	32.2%	0.0%	32.2%
Long-term goals are successfully translated into short-term objectives.	48.8%	5.6%	**43.2%**
Strategic objectives are sufficiently translated into clear actions.	43.4%	2.8%	40.6%
Actions clearly contribute to the execution of the strategy.	33.3%	2.8%	30.5%
The strategy is supported by existing information systems.	57.8%	22.3%	35.5%
The progress of development and implementation is monitored.	31.1%	13.9%	17.2%
The impact of the strategy on performance is measured.	47.8%	11.1%	36.7%
Strategic plans are refined and adapted during implementation.	27.8%	11.1%	16.7%
Employees have the right competencies for reaching goal(s).	35.5%	11.1%	24.4%
Management is involved in strategy implementation.	12.2%	2.8%	9.4%
Management takes enough time for well-informed decisions.	37.8%	5.6%	32.2%
Management is able to motivate their strategic choices.	32.3%	2.8%	29.5%

Communication			
There is a formalised strategy (defined and official).	25.5%	8.3%	17.2%
There is clear communication of strategy.	34.5%	5.6%	28.9%
The majority of the organisation understands the strategy.	45.6%	2.8%	42.8%
The impact of the strategy on the employees is widely known.	58.9%	13.9%	**45.0%**
Responsibilities for reaching strategic goal(s) are known.	53.3%	13.9%	39.4%
Employees have clear understanding of the expected actions.	50.0%	8.3%	41.7%
There is frequent communication of the strategy.	34.4%	16.7%	17.7%
Strategic plans are communicated in time to the employees.	38.9%	16.7%	22.2%
Accurate information about strategic plans is provided.	40.0%	11.1%	28.9%
Employees can easily access information about strategic plans.	45.5%	11.2%	34.3%

Appendix F - Analysis of open-ended questions

Table 36 - Data about how the boundaries of strategic transformations are defined

Aspects identified	N	Aspects identified (continued)	N
Budget	12	Control objectives	1
Scope of the strategy	10	Business information planning	1
Time	8	Strategy framework policy	1
Management	7	Change management system	1
Objectives	7	Expected end state	1
Product	4	Dividing over domains	1
Project	4	Interlock sessions	1
Capabilities	3	Impact to systems/functions	1
Documentation	3	Collaboration between business & IT	1
Ad hoc	2	Consensus	1
Target benefits	2	The loudest voice	1
Business units	2	Departmental silos	1
Departments	2	Flexible	1
Organisational structure	2	Roadmaps	1
Customer	2	Behold labour	1
Legislation	2	KMS	1
Meetings / presentations	2	IT	1
Value chain model	2	Responsibilities	1
Architecture	1	Slogans	1
HR	1	Resources	1
Economy	1	Business component model	1
Balanced scorecard	1	Enterprise architecture	1
Business segmentation	1	Skill set	1
Risk profile	1	OGSM framework	1

Table 37 - Data about how the intent behind strategic plans consistently is communicated

Aspects identified	N	Aspects identified (continued)	N
Intranet	15	Yearly meetings	2
CEO/Management	13	Attitude and culture program	1
Presentations	9	Strategic Framework available	1
Email	9	One channel	1
Town hall meetings	7	Communication strategy	1
Quarterly meetings	6	Flyers	1
Newsletter	6	Engagement communication team	1
Regular update	5	Annual results meeting	1
"Employee" conferences	5	Team Wikis	1
Monthly "management" meetings	4	Briefing sessions	1
Communication department	4	Executive team communication	1
Communication through management	4	Joint workshops	1
Video	4	KPI	1
Written reports	4	Dashboard	1
Plenary sessions	3	Electronically	1

Discussions	3		Information sessions	1
Repetition of plans	3		Personal sessions	1
Meetings	3		Q-sessions	1
Hierarchical lines	3		QBU	1
Internal roadshow	2		Recursive status meeting	1
Messages by same people	2		Round table discussion	1
Stand-up meetings	2		Control of messages	1
Communications	2		Staff meeting	1
Briefings	2		Periodical communication/updates	1
Centralised communication	2		Public statements	1
Social media	2		WebEx calls	1
Web publication	2			

Table 38 - Data about how personal values/goals are aimed to one common (strategic) goal

Aspects identified	**N**		**Aspects identified (continued)**	**N**
Personal target objectives	12		Combine bottom-up with top-down	1
Defined values	5		Mails	1
Training / Education	4		Courses and certificates	1
Cascading performance objectives	3		Annual plans (departmental/staff)	1
Appraisal/bonuses	2		Hierarchy of vision and strategy	1
Aligned goals	2		Personal sessions	1
Balanced scorecard	2		Enterprise architecture	1
Communication	2		Negotiation	1
Monitor progress/performance	2		PACE framework	1
Meetings	2		Performance management system	1
HR department	2		Performance pyramid	1
Personal review meetings	2		Strategy maps	1
Distributed PDP	1		Personal development meetings	1
Relational pyramid	1		Management roadshows	1
Briefings	1		Presentation	1
Communicating to individual	1		Newsletter	1
Critical success factors	1		Regular follow-up	1
Monitoring through dashboard	1		Interlock sessions	1
Espousing language	1		Stakeholder analysis	1
Human performance management tools	1		Engage employees in cultural and behaviour program	1
Recruiting external transition manager	1		Focus on organisational goal	1
Elaborate	1		Common goal as main target	1
Commitment of management	1		Intense reconcilement	1
OGSM method	1		Top-down communication	1
Change agents	1		SMART objectives approach	1
Clear mission/vision statement	1		Management	1
Public presentation goals	1		Personal PEP/POP	1
Management of objectives	1		Common core values	1
Monitoring by manager	1		Written guidelines	1
Collaboration with representatives	1		Express personal values an goals	1

Table 39 - Data about how interdependencies between stakeholders are recognised

Aspects identified	N	Aspects identified (continued)	N
Stakeholder interdependencies matrix	6	Corporate memory	1
Projects and Portfolio management	5	Modeling	1
Stakeholder analysis	4	Meeting between stakeholders	1
Ad-hoc	4	Stakeholders alert organisation	1
Informal	4	Define in strategic plan	1
Mapping	3	Communicated via email	1
Knowledge of people	2	Baseline and target architectures	1
Understanding	2	Analysis	1
Common sense	2	Information management	1
Internal communication	2	Determine business processes	1
During implementation process	2	Identify stakeholders	1
Resource allocation	2	Summary matrix	1
Program management	2	During development of business cases	1
Communication scheme	2	During initial phase programs	1
Eco-system of stakeholders	1	Diagram	1
Architecture	1	High transparency	1
Risk and dependencies register	1	R&D department	1
Organisational overlaps	1	Mutual review and linkages	1
Analysing the business processes	1	OGSM	1
Coordination	1	SLA	1
By linking pins (horizontal & vertical)	1	Impact analysis	1
Define architecture roadmaps	1	Power struggle	1
Define programs	1	Discussions	1
Individual contact	1	Capabilities	1
Interlock sessions	1	IT perspective	1
Management review	1	Steering committees	1
Name and roles of stakeholders	1	PMO functions	1
Recognising conflicting interests	1	Hierarchy	1
Cross-functional transformation teams	1	Influence matrix	1
Contribution of various stakeholders	1	Year plans recognise dependencies	1
Knowledge transfer	1	Chain interaction analysis	1

Table 40 - Data about how necessary changes/actions to reach strategic goals are defined

Aspects identified	N	Aspects identified (continued)	N
Project and Program management	16	Defined by IT	1
Management	8	Meta plan of 3-5 years	1
Roadmaps	4	Strategy development	1
Discussions	3	EA transformations	1
Gap analysis	3	Maturity and capability assessment	1
Ad hoc	3	Brainstorming	1
Workshops	2	Training	1
Change management process	2	Departments define actual actions	1
Action plans	2	Newsletters	1

Meetings	2		Staff meetings	1
OGSM framework	2		Joint workshops	1
Define the products/services delivered	1		KPI	1
Define the products/services sold	1		Management committee round table	1
Determine the staffing	1		Financial target basis	1
AMRT objectives	1		Portfolio management	1
Actionable goals	1		Periodical meetings	1
Actionable timeframes	1		Reactively	1
Architecture	1		Reconcilement	1
Breakdown goals to define steps	1		Short-term focus	1
Business Information Planning cycle	1		Target operating models	1
Update documents periodically	1		Text descriptions	1
Balanced Scorecard techniques	1		Implementation schedules	1
Define group programs to cluster and control necessary actions	1		Record plans in yearly revises strategic plan	1
Describing desired outcome	1		Assessment	1
Making plans	1		Work backward	1
Departmental year plans	1		Written reports	1

Table 41 - Data about how project contribution to reach strategic goals is communicated

Aspects identified	N		Aspects identified (continued)	N
Intranet	14		Enterprise Architecture Board	1
Newsletters	10		Rapport of portfolio department	1
Email	5		Management blog	1
Communication	3		Ad-hoc	1
Meetings	3		Progress and end project report	1
Contribution to KPI	2		Context descriptions of projects	1
Presentations	2		Joint workshops	1
Project plan	2		Balanced Scorecard	1
Project milestones	2		Project/program against strategic plans	1
Portfolio management	2		Gatherings	1
Management	2		Project charter	1
KPI	2		Project evaluation	1
Periodically briefings and updates	2		Portfolio management updates	1
Business cases	2		Quarterly reviews	1
Integral project planning	1		Short-term goals	1
Architecture	1		Strategic roadmaps	1
Benefits case	1		Financial reporting	1
Follow up of figures	1		Program management artefacts	1
Broadcast	1		Town hall meetings	1
Mapping on integrated enterprise architecture	1		Project achievements	1
Mapping projects on strategy map	1		EA meetings	1
Monitoring projects profit rates	1		Reports	1
Objectives	1		Information sessions	1
Defined upfront	1			

Part II

A Method for Assessing Strategic Alternatives based on the Expected Return and Associated Risk

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1. Problem formulation, research motivation and research methodology

During World War II Winston Churchill (1874-1965) the British Prime Minister said the following words about strategy:

> "However beautiful the strategy, you should occasionally look at the results."

Even through these words were said in a different century and in a complete different setting they still apply to all organisations nowadays. Organisations are constantly working to develop and implement strategies to survive in a competitive environment. However, organisations tend to focus on developing the most "beautiful" strategy with the most opportunities for their organisation. It is important that these organisations keep in mind what such a strategy will actually yield. During strategy development organisations should evaluate or assess their strategic alternatives to see which results they will produce for the organisation. With the use of this information organisations can make well-informed strategic decisions. Consequently, not only the most "beautiful" strategy is selected but the one that will yield the best results for the organisation.

In the following paragraphs the research is motivated with the use of a problem statement, research objectives, and research questions. The research approach explains the structure of the research, the research methodology describes how the research is conducted, and the research contribution mentions the scientific and social relevance of the research.

1.1. Problem formulation and research motivation

One thing that is certain in the current environment is that there will be more organisational change instead on less (Balogun, 2001). The competition and globalisation of markets is intensifying and therefore it becomes increasingly important for organisations to manage and survive change (Amagoh, 2008). Organisations need to develop or adjust their strategies to survive in the dynamic and complex environment. A business strategy determines the decisions and course of action that businesses take to achieve competitive advantage (Slater, Olson, & Hult, 2010). Formulating a consistent strategy for an organisation is a daunting task, making that strategy work is even more difficult (Li, Guohui, & Eppler, 2010). Especially, during strategy implementation most of the complications occur. An Economist Intelligence Unit survey from 2004 about the subject strategy execution shows that 57% of the researched organisations failed when trying to execute strategic initiatives. Kaplan and Norton (2005) have found that 60% of the organisations do not link their financial budgets to strategic priorities (Kaplan & Norton, 2005). PricewaterhouseCoopers (PwC) conducted the 17th annual Global CEO Survey in which 1,344 CEOs in 68 countries are questioned on the topic of closing the gap between strategy and execution (PwC, 2014). One of the findings is that only 54% of organisations are satisfied with their ability to execute on their strategic vision. Another finding shows that only 43% believe that all risks associated with the strategy have been sufficiently considered. These findings show that organisations are still struggling with successfully developing and implementing strategies.

There are numerous methods, techniques, or models developed to support and assist organisations in reaching strategic change. There are models that could be used to develop a strategy for an organisation, models that provide a guideline to implement a strategy, and models that support strategic alignment. However, it can be time consuming to apply each of these models individually and analyse them separately. Aldea, Iacob, Quartel and Franken

(2013) have developed a method that can align strategic thinking with strategy implementation. This method is an integrated approach to analyse, implement and evaluate a strategy. It provides a guideline for developing a strategy in such a way that it aligns business with IT/IS and therefore makes strategy implementation possible. In this method nine phases can be followed to successfully align strategic thinking with strategy implementation. A detailed explanation of the method can be found in Appendix A - . The method developed by Aldea et al. (2013) is a guideline for formulating and developing a strategy and for implementing it in such a way that the business and IT are aligned. However, even though this method is an improved technique to align strategic thinking with strategy implementation, it still has some limitations.

In the model of Aldea et al. (2013) performance analysis takes place in the strategy evaluation phase, which is the last phase of the method. In this last phase the outcomes of the strategy, like the costs and the benefits, are compared with the targets to assess the progress and performance of the strategy. In the method organisations know in the last phase which results the strategy will yield for the organisation. However, if the selected strategy seems to be too costly in the evaluation phase then the organisation can start again with developing and implementing a strategy. Organisations should know the outcome of a strategy before making the strategic decision, or at least a sound estimation of the outcome. During the strategic decision making process an organisation needs to consider the possible outcomes of the strategic alternatives (Bhushan & Rai, 2004). Mattacks (2009) argues that organisations should keep the acceptability of the strategic alternatives in mind. Acceptability is about the expected performance outcomes, such as the return and risk, of a strategy and the extent to which these meet the expectations of stakeholders.

Mintzberg, Ahlstrand and Lampel (2009) define a strategy as a ploy, which is a specific manoeuvre to outwit an opponent or competitor. A strategy is usually formed to gain competitive advantage over others. Organisations use strategies to survive in a dynamic and complex environment and to perform better than their competitors. Shareholder value is a way to determine the organisational performance (Lee & Lee, 2006). Shareholder value measures an organisation's success in terms of the extent to which it enriches shareholders. If an organisation does not create value for its shareholders it might not survive in the dynamic environment. According to Beasley and Frigo (2007) an organisation strives to create or maximise shareholder wealth and to do so while obeying to the ethical parameters of stakeholders and communities. Obviously, non-profit organisations are an exception to this case; consequently this research focusses only on profit organisations. Lee and Lee (2006) mention that many possible criteria can be used to evaluate firm performance like the total sales, net profit, growth rate, market share, and earnings per share. Consequently, when an organisation develops and chooses a strategy it has to make sure that this strategy will result in competitive advantage for the organisation. A strategy should increase or maximises the shareholder value of an organisation.

In the model developed by Aldea et al. (2013) strategic alternatives are evaluated by using the quantitative strategic planning matrix (QSPM), as can be seen in Appendix A - . QSPM is used to choose between alternative strategies based on the organisation's internal and external factors. This evaluation of Aldea et al. (2013) only considers internal capabilities and external opportunities to be of importance. With this assessment of strategic alternatives not much can be said about the influence of strategic alternatives on shareholder value. The model lacks to consider the expected performance outcomes of strategic alternatives. Interesting is that not only Aldea et al. (2013) fail to consider the expected return and the associated risk of strategic

alternatives during strategic decision making. Literature about evaluating performance outcomes, thus the trade-off between return and risk, of strategic alternatives during strategic decision making is absent. While it seems crucial to know whether the strategic alternatives increase the shareholder value of an organisation it is not mentioned often and a practical application is not revealed.

1.1.1. Problem statement

In the strategic decision making process organisations should consider the performance outcomes of each strategic alternative. The performance outcomes are different for each strategic alternative because of the specific changes associated with a strategic alternative. For well-informed strategic decisions organisations should compare these performance outcomes to make an assessment of the strategic alternatives. The performance outcome is determined by two factors: the return and the risk associated with a strategic alternative. Often the focus is on either the return or the risk while these two factors together determine the performance outcome of strategic alternatives. The trade-off between return and risk in assessing strategic alternatives is acknowledged in a few articles but a practical application is not provided.

Each strategic alternative requires specific changes which will lead to a unique return. The return of a strategic alternative is the (shareholder) value of the organisation after the strategic alternative is implemented. To determine the return not only the costs of a strategic alternative are considered, also which revenues this strategic alternative could yield should be identified (Hill, 2008). Assessing the return of strategic alternatives will support organisations in making the right strategic decision. Organisations who do not consider return in an early stage might identify in a later stage that the strategic alternative does not increase or maximises the (shareholder) value. When this strategic alternative will be discarded it will lead to a waste in effort and in time, and when a part of the strategy is implemented it will also lead to a loss in resources. Just as the return each strategic alternative has its own associated risk. Some strategic alternatives have higher risk than others because of more uncertainties during implementation. For instance, a strategic alternative concerning the reduction of the production costs has lower associated risk than a strategic alternative for exploring a new market. The (shareholder) value is influenced by the associated risk of a strategic alternative. Many business failures are due to the mismanagement of risk. Consequences can range from embarrassment to a setback to bankruptcy (Drew, Kelley, & Kendrick, 2006). For a strategic alternative to succeed the organisation has to consider the risk of implementing that strategy and whether they are willing to take the risk. High associated risk leads to a higher chance that the performance outcome of the strategic alternative will be negative, thus it will not increase or maximise the (shareholder) value. An organisation needs to determine whether the risk associated with a strategic alternative is acceptable to make a sound strategic decision.

Evaluating performance outcomes of strategic alternatives in the strategic decision making process is challenging since there is no actual information about the result of the strategic alternatives. Therefore, it is necessary to make an estimation of the performance outcomes, such as return and risk, by predicting the changes associated with strategic alternatives. It is difficult for organisations to calculate the return or risk of strategic alternatives with limited information. Consequently, this research speaks of expected return and associated risk which are based on estimations and predictions.

In the competitive and dynamic environment it is crucial for organisations to make well-informed strategic decisions to survive. It could be potentially devastating for an organisation

to choose a strategic alternative which will not maximise the shareholder value. Consequently, the problem statement appropriate for this research is as follows:

> *When the expected return and associated risk of strategic alternatives are not estimated in the strategic decision making process, organisations make poorly informed strategic choices and they might waste time, effort and resources when implementing a strategic alternative which does not create value.*

1.1.2. Research objectives

The strategic decision making process should not be focussed only on assessing the organisational capabilities and the environmental opportunities but also the expected return and associated risk of strategic alternatives should be taken into account. The main research objective of this paper is to develop a method to assess strategic alternatives based on the expected return and associated risk which can be used in the strategic decision making process. This main objective can be sub-divided into several sub-objectives to get a more detailed overview of what has to be accomplished. The sub-objectives are as follows:

- Identify the role of the expected return and associated risk in the strategic decision making process.
- Identify the right measures for assessing the expected return of strategic alternatives.
- Identify the right measures for assessing the risk associated with strategic alternatives.
- Determine the general design of the method; the conceptual model.
- Create the method for assessing the return and risk of strategic alternatives.
- Provide a solid demonstration of the method for assessing return and risk.
- Provide an evaluation of the method and describe its limitations.

1.1.3. Research questions

Based on the problem statement and the research objectives a research question is formulated. This main research question is the centre of the research and is formulated as follows:

> *How can strategic alternatives be assessed based on an estimation of the expected return and the associated risk to support strategic decision making?*

Sub-research questions are developed to provide a guideline for this study and to contribute to finding an answer to the main research question. The following sub-questions are formulated:

- How can the expected return and associated risk of strategic alternatives influence the strategic choice in the strategic decision making process?
- What are the best methods for estimating the expected return of strategic alternatives?
- What are the best methods for estimating the associated risk of strategic alternatives?
- What are the steps in the method for assessing strategic alternatives based on their expected return and associated risk?

1.2. Research approach

In social research there are two research approaches which can apply to the research: the deductive approach and the inductive approach (Babbie, 2010). These two approaches can be used to determine theories or test hypotheses. However, this research is not about examining a situation and developing a theory but about solving a problem. A more practical approach is required to create a plan for the construction of an artifact as a solution to the identified problem. This research requires a design approach in which knowledge and understanding of a design problem and its solution are acquired in the building and application of an artifact

(Hevner, March, Park, & Ram, 2004). This research follows the structure of a design science approach. From the design science perspective, the main purpose of academic research is to develop valid knowledge to support organisational problem solving in the field (Saunders, Lewis, & Thornhill, 2009). The structure of this research can be seen in Figure 1.

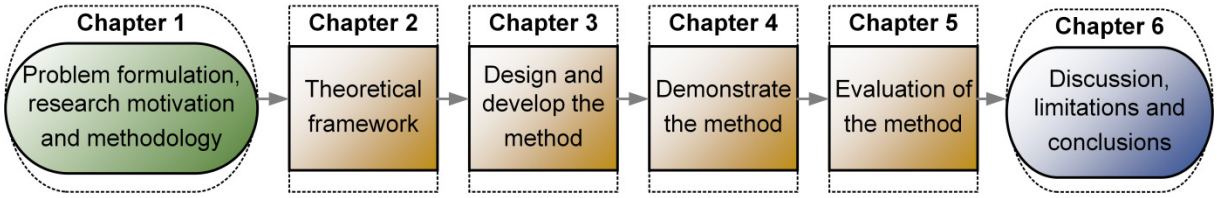

Figure 1 - Overview of the structure of the research

In Chapter 1 of this research a context is created for the research by describing the research problem and research objectives. The problem statement refers to the main problem which is addressed with this research, the research objectives show what is anticipated to be accomplished with this research, and the research questions determine which questions needs to be solved to provide the solution for the research problem. The way the research is conducted is described in the methodology which provides a guideline for the research. The first chapter describes the "why" and the "how" of the research. It describes that the creation of an innovative, purposeful artifact is required for a specified problem domain. The artifact can be a construct, a model, a method, or an instantiation; in this situation the artifact will be a method (Hevner et al., 2004). The last section of Chapter 1 exists of the research contribution which describes the most important contributions of this research. Before the method can be developed some information is needed about the possible and already existing solutions. In Chapter 2 a theoretical framework is used to gather the required information and knowledge. This framework is the foundation on which the method will be developed. In the theoretical framework literature is gathered and critically reviewed. All relevant scientific or non-scientific articles, books, blogs, or white papers are explored. When there is sufficient knowledge and information gathered it is time to design and develop the method. A conceptual model is created showing the basic outline of the method and the main steps within the method are displayed. Chapter 3 exists of this conceptual model and a more detailed explanation of each step within the method. The detailed explanation of a step will be accompanied with an example of that step. Excel is used to develop the method since it is user friendly and it has extensive functionalities. When the method is designed and developed it is time to make a demonstration to evaluate the functionality of the method. A demonstration is made with the use of a case study of the fictitious ArchiSurance organisation. With the use of artificial data which matches with the case study the method is tested. The demonstration is made to discover flaws or to identify problems and to improve the method based on the observations made during the demonstration. This demonstration is shown in Chapter 4. While the demonstration is partly an evaluation of the method the actual evaluation is described in Chapter 5. In this chapter the method is evaluated not only by making a demonstration but also with the use of findings from the Strategic Alignment survey and with the use of in-depth interviews with experts. This chapter explains how the questions are developed, how the data is analysed, and provides a discussion of the findings. Chapter 5 also describes the methodology of the in-depth interviews, the analysis of the data, and the discussion of the main remarks. The main research question is answered in Chapter 6, and a discussion is provided about the method as the proposed solution. In this chapter the limitations of the research and the method are described and recommendations for future research are made.

1.3. Research methodology

A research usually has one or more of the following three research purposes: it provides an exploration, description and/or explanation (Babbie, 2010). Not one of these purposes applies to this research since the purpose of this research is about designing a method which assesses strategic alternatives based on expected return and associated risk. The method has to make calculations of the expected returns and of the associated risks for each strategic alternative. Furthermore, the method has to be able to interpret and compare the outcomes resulting from the calculations. By comparing the outcomes an assessment of the strategic alternatives can be made. Consequently, this research has a design science research purpose.

1.3.1. Design science research methodology

Design science is about seeking to extent the boundaries of human and organisational capabilities by creating new and innovative artifacts (Hevner, March, Park, & Ram, 2004). According to Hevner et al. (2004) design science creates and evaluates IT artifacts intended to solve identified organisational problems. Such artifacts are represented in a structured form that may vary from software, formal logic, and rigorous mathematics to informal natural language descriptions. The organisational problem in this study is the absence of a return and risk assessment in the strategic decision making process. The artifact that is developed in this paper is the method for estimating the return and risk of strategic alternatives to make an assessment. The research strategy that best fits with this research is the design science research methodology (DSRM), as stated by Peffers, Tuunanen, Rothenberger and Chatterjee (2007). The steps of the DSRM, according to Peffers et al. (2007), can be seen in Figure 2. This research aims at an objective-centred solution, starting with activity two from Figure 2, since it is triggered by a research need established by Aldea et al. (2013). This need is then addressed by developing an artifact. Each step and the meaning of this step for the research are explained below.

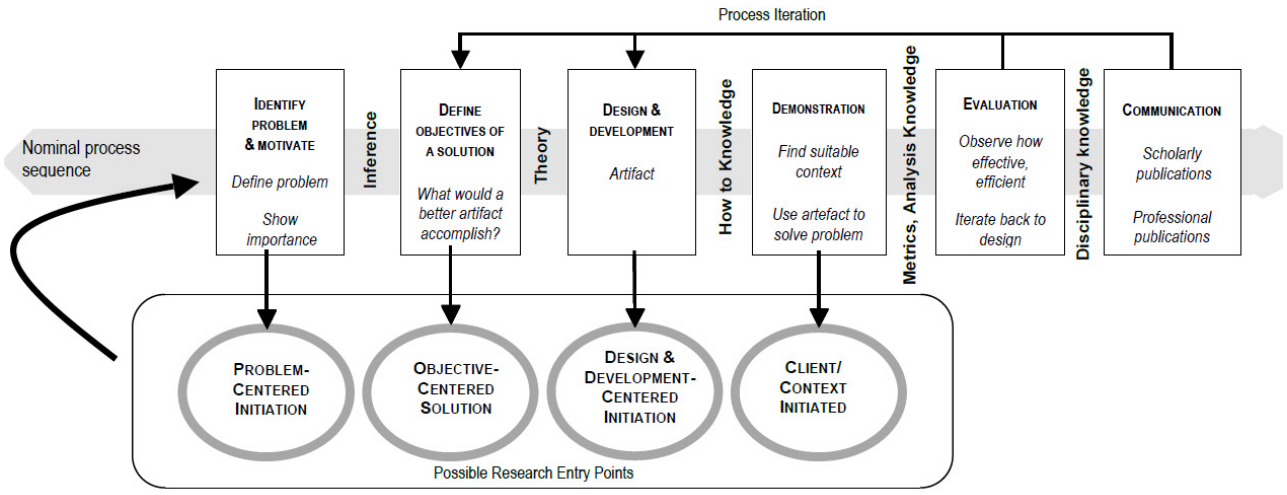

Figure 2 - DSRM Process Model (Peffers, Tuunanen, Rothenberger, & Chatterjee, 2007)

1.3.1.1. Identify problem and motivate

This step reflects the second guideline of Hevner et al. (2004) which is problem relevance. According to Hevner et al. (2004) the objective of design science research is to develop technology-based solutions to important and relevant business problems. Peffers et al. (2007) establish that a specific research problem needs to be defined and the value of the solution has to be justified. The specific research problem is defined in paragraph 1.1.1 and it concerns the absence of an evaluation of the expected return and associated risk in the assessment of strategic alternatives in the strategic decision making process, which could lead to a waste in

time, effort and resources. Paragraph 1.1.2 shows the objectives of this study, thus the results this research hopes to deliver. However, the value of the solution is not explicitly stated in these objectives. The social relevance of this research is that the method will be provided to organisations to make it possible for them to make well-considered strategic choices. By not only considering the organisational capabilities and environmental opportunities but also the expected return and associated risk of strategic alternatives a well-informed decision can be made. The chance of the chosen strategic alternative being the right one increases since with the use of the method there is more information about what the strategy will yield for the organisation. Next to the social relevance the research has also a scientifically relevance since the use of the trade-off between return and risk in the strategic decision making process is only mentioned in a few articles. The scientific literature that does mention the importance of considering the trade-off between return and risk merely provides theoretical suggestions. Therefore, there is some literature available but this literature does not offer a practical method like this research does. More about the research contribution and the social or scientific relevance can be found in paragraph 1.4.

1.3.1.2. Define objectives of solution

According to Peffers et al. (2007) the objectives should be derived rationally from the problem specification. Resources required for deriving the objectives include knowledge of the state of problems and current solutions. The objectives of this research are displayed in paragraph 1.1.2 and reflect the objectives of the solution. The main objective of solution can be formulated as follows:

> *A method has to be developed to assess strategic alternatives based on their expected return and associated risk to support the strategic decision making process.*

Objectives provide the research paper with a clear sense of purpose and direction (Saunders et al., 2009). These objectives of solution are still quite general and do not propose much about the possible solution. A theoretical framework is used to gather knowledge about the current solutions and which kind of measures there are for estimating expected return and associated risk. The theoretical framework provides a foundation for the method by critically reviewing the available literature.

1.3.1.3. Design and development

This step is about the creation of the artifact in which an artifact can be seen as a construct, model, method, or instantiations. An artifact can also be seen as new properties of technical, social and/or informational resources (Peffers et al., 2007). In this step the artifact's desired functionality and its architecture has to be determined. When this is determined the actual artifact can be designed and developed. In this research the artifact will be a method for assessing strategic alternatives based on the expected return and associated risk. The functionality and the architecture of the method are determined and developed in this step. Each step of the method will be explained and literature will be used to support the choices made for developing the method. The theoretical framework will function as the foundation for designing and developing the method. The functionality and architecture of the method are defined with the use of the theoretical framework. An example will be given for each step within the method to show the practical application of the method.

1.3.1.4. Demonstration

When the method is designed and developed a demonstration is made to show the use and functionality of the artifact (Peffers et al., 2007). Babbie (2010) states that there are several qualitative field research approaches which can be used to demonstrate the functioning of the proposed artifact like an experiment, simulation or case study. In this study a case study will be used to demonstrate the use of the method. The case study is an in-depth examination of the usability of the proposed method for assessing strategic alternatives based on the expected return and associated risk. This is a form of an extended case study which is a technique to use case study observations to discover flaws and to improve the developed method (Babbie, 2010). The purpose of this demonstration step is to get feedback on the developed process and to use this to improve and adjust. For this demonstration the case study that is selected is about the fictitious ArchiSurance organisation, which core activity is selling insurances. According to Peffers et al (2007) the resources needed for a demonstration include effective knowledge of how the method can be used to solve the problem.

1.3.1.5. Evaluation

The utility, quality, and efficacy of the designed method must be rigorously demonstrated via well executed evaluation methods (Hevner et al., 2004). Evaluation can be used to observe and measure how well the method supports a solution to the problem (Peffers et al., 2007). According to Hevner et al. (2004) there are several evaluation styles and evaluation methods, these are shown in Table 1. The previous step describes that a demonstration will be made of the method with the use of a case study. This demonstration is an observational evaluation, an experimental evaluation and a testing evaluation. It is an observational evaluation since a case study is used to provide a business environment and thus the context for executing the method. It is an experimental evaluation because a simulation is made for the case study; artificial data is used to be able to execute the method. The demonstration of the method also allows for testing since the method is executed which makes it possible to discover failures and identify defects. According to Peffers et al. (2007) evaluation is also about comparing the objectives of a solution to actual observed result from the use of the method in the demonstration. The main objective of solution is making it possible for organisations to compare strategic alternatives based on the expected return and associated risk. Therefore, if the method provides a solid comparison of the expected return and associated risk then the method is functional.

An evaluation could include any appropriate empirical evidence or logical proof (Peffers et al., 2007). The evaluation of the method does not stop at the demonstration. The next step to evaluate the method consists of two parts. The first part of the evaluation is the use of the data from a section of the Strategic Alignment survey about strategic decision making and the role of return and risk. With this section the underlying assumptions of the method are tested by analysing the data from the questionnaire. The use of findings from the questionnaire is a descriptive evaluation of the method. With the use of an informed argument is reasoned whether the underlying assumptions are supported by organisations. In the second part there are in-depth interviews with experts on the topic. These experts can validate the developed method or give suggestions to improve the method. The participants are selected based on their knowledge in the field of strategic decision making and/or in the field of financial and/or risk management. The in-depth interviews are a descriptive evaluation of the method by using information from the knowledge base to build a convincing argument for the method's utility (Hevner et al., 2004).

Table 1 - Evaluation methods for design science research

Evaluation style	Evaluation method
1. Observational	Case Study: Study artifact in depth in business environment Field Study: Monitor use of artifact in multiple projects
2. Analytical	Static Analysis: Examine structure of artifact for static qualities (e.g., complexity) Architecture Analysis: Study fit of artifact into technical IS architecture Optimisation: Demonstrate inherent optimal properties of artifact or provide optimality bounds on artifact behaviour Dynamic Analysis: Study artifact in use for dynamic qualities (e.g., performance)
3. Experimental	Controlled Experiment: Study artifact in controlled environment for qualities (e.g., usability) Simulation: Execute artifact with artificial data
4. Testing	Functional (Black Box) Testing: Execute artifact interfaces to discover failures and identify defects Structural (White Box) Testing: Perform coverage testing of some metric (e.g., execution paths) in the artifact implementation
5. Descriptive	Informed Argument: Use information from the knowledge base (e.g., relevant research) to build a convincing argument for the artifact's utility Scenarios: Construct detailed scenarios around the artifact to demonstrate its utility

1.3.1.6. Communication

Design-science research must be presented effectively both to technology-oriented as well as management-oriented audiences (Hevner et al., 2004). According to Peffers et al. (2007) it is important to communicate the problem and its importance, the method, its utility and novelty, the rigor of the design, and its effectiveness to relevant audiences. The structure of an empirical research paper will apply to this research. In paragraph 1.2 the structure of this paper is displayed and explained. This research will be published as a research publication in the form of a master thesis. Therefore, communication occurs when the thesis is published.

1.4. Research contribution

The main contribution of this research is providing a method for organisations to assess strategic alternatives based on their expected return and associated risk, to support the strategic decision making process. Nevertheless, a distinction between the scientific contribution of the research and the social contribution is made.

1.4.1. Scientific contribution

In the literature much can be found about the assessment of strategic alternatives. In scientific journals is described that several aspects should be kept in mind to assess strategic alternatives. Many researches describe that strategic alternatives should be assessed based on aspects such as internal and external environmental factors, the expected return and the associated risk. While they do explain the importance of using these aspects to assess strategic alternatives and even give some examples of methods to be used, there is no applied example or description of how it would work in practice. Most scientific literature only provides abstract and theoretical suggestions. How organisations should apply such an assessment is not described. Of greater importance is the gap within the literature about the trade-off between return and risk for assessing strategic alternatives. Some researches mention that this trade-off will result in a comprehensive assessment of strategic alternatives. However, a

description of how a trade-off can be made is still lacking in the current literature. This research explores the possibilities of assessing strategic alternatives based on the expected return and associated risk. A method is developed which shows the practical application of such an assessment. This research is more than stating general and theoretical suggestions since it provides an actual guideline for organisations who want to assess their strategic alternatives based on the expected return as well as the associated risk.

1.4.2. Social contribution

Next to the scientific contribution this research has also a contribution for BiZZdesign since the method can be incorporated in the model-based approach to align strategic thinking with strategy implementation of Aldea et al. (2013). By incorporating a method for assessing strategic alternatives based on the expected return and associated risk organisations have a better chance at choosing the right strategic alternative. The method will complement the existing QSPM method for assessing strategic alternatives based on internal and external environmental factors. It will make the strategy model-based approach more comprehensive. The social relevance of this research is that this method will make it possible for organisations to make well-considered strategic choices. By not only considering the internal and external environmental factors but also the expected return and associated risk of strategic alternatives a well-informed decision can be made. In an environment where strategies become increasingly important for organisations to survive it is important that those organisations make the right strategic choices. The method helps organisations in their strategic decision making process, and provides them with more information to support the decision making.

2. Theoretical framework

The theoretical framework of this research paper will function as the foundation for designing and developing the method for assessing strategic alternatives based on the expected return and associated risk. The theoretical framework consists of two parts. The first part is the methodology of the theoretical framework which described how literature is sought and found. The second part is the literature review in which literature is critically reviewed to determine what is relevant for designing and developing the method.

2.1. Methodology theoretical framework

According to Peffers et al. (2007) it is necessary to have knowledge about the state of problems, current solutions and their efficacy. To be able to determine the functionality and architecture of the method it is necessary to gather information and knowledge about the possible solutions. Literature is sought to support the development of the method. The purpose of the literature review is to critically review the relevant theories and information about how strategic alternatives can be compared based on the expected return and associated risk. Not all literature is reviewed here; only the most relevant literature is studied. A critical review of the literature will be used to examine which role return and risk have in the strategic decision making process, which measures of return can be used for assessing strategic alternatives, and which measures of risk can be used for assessing strategic alternatives.

The literature that is gathered is mostly English and only when it is absolutely relevant some Dutch literature is included. Literature is sought on the subject areas of strategic decision making and assessing strategic alternatives. The main focus is on including the newest literature on the subject, thus from the last ten years. However, when literature is older than ten years but still undeniable relevant it is included in the literature review. There are several sources of literature used in the literature review and it includes primary literature, such as White Papers, and secondary literature, such as scientific books and journals. Some key words are used when searching for literature such as strategic decision making, strategic decision making process, return, risk, strategic alternatives, assessing strategic alternatives, evaluating strategies, measure return, measure risk, and strategic choices. Those key words are used to search in search engines, directories, and bibliographies.

2.2. Literature review

The literature review is used to critically evaluate the relevant information regarding the assessment of strategic alternatives based on their expected return and associated risk. First the strategic decision making process is explored since the assessment of strategic alternatives occurs in the strategic decision making process. The phases of strategic decision making and the variables influencing strategic decision making are examined. Second, the role of return and risk in the strategic decision making process during the assessment of strategic alternatives is explored. With use of literature the importance of return and risk analysis for evaluating strategic alternatives is emphasised. Finally, possible measures of expected return and associated risk which can be used for evaluating the strategic alternatives are mentioned and critically reviewed. The literature review provides answers to the following three sub-research questions:

- How can the expected return and associated risk of strategic alternatives influence the strategic choice in the strategic decision making process?
- What are the best methods for estimating the expected return of strategic alternatives?
- What are the best methods for estimating the associated risk of strategic alternatives?

2.2.1. The strategic decision making process

In difficult and complex situations major decisions needs to be made such as entering new markets, developing new products, or acquiring/divesting a business. Difficult decisions are made in order for an organisation to adapt, function, progress, or take advantage of opportunities. The ability to make tough decisions is essential towards organisational success (Elbanna & Child, 2007). According to Hitt and Collins (2007), the internal decision making capability is critical to the effectiveness of a firm's strategic decisions. Strategic decisions will affect the firm's performance and value. The process of strategic decision making involves information gathering, developing alternatives and choosing among alternatives (Shepherd & Rudd, 2013). Bhushan and Rai (2004) give a more specific explanation of strategic decision making: "strategic decision making (SDM) involves fitting the internal capabilities to the external environment by choosing the best among the possible alternatives" (p. 5).

Mintzberg, Raisinghani and Theoret (1976) identified three phases in the strategic decision making process (SDMP), which became the basis for most of the SDMP literature. The *first phase* is the identification phase which exists of two steps. The first step is to recognise a problem or opportunity, which indicates that there are changes in the environment. The second step is to gather information about the occurring change which creates understanding about the needed actions. The *second phase* is the development phase which also requires two steps. The first step is to seek internally and externally for alternative solutions to the occurring changes. Second, potential solutions need to be designed or existing solutions need to be modified to fit the new circumstances. The *last phase* is the phase of strategic decision making. In this phase three steps need to be followed. The first step is to screen the alternative solutions generated from the development phase and select a few which are examined in detail. The next step is to go through an assessment-choice process in which the remaining solutions are analysed and judged. The last step of this phase is to make the final decision on which strategic alternative to pursue and implement (Mintzberg et al., 1976).

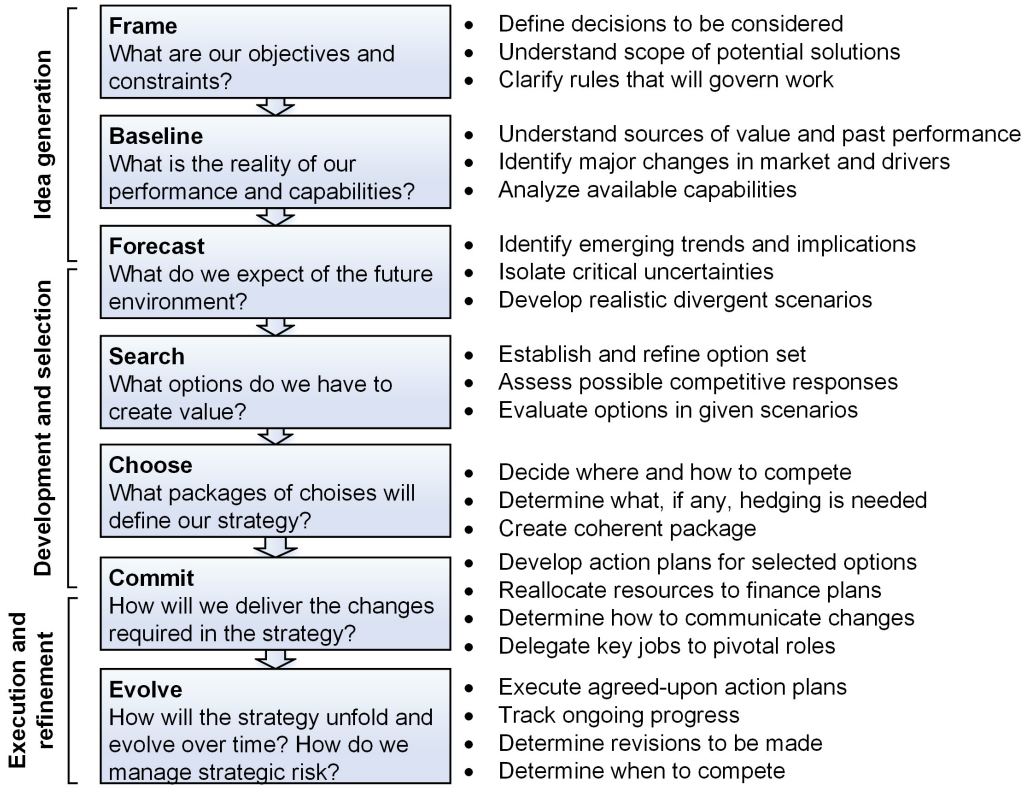

Figure 3 - Moving from idea to execution framework (Bradley, Bryan & Smit, 2012)

Musso and Francioni (2012) follow almost the same steps as Mintzberg et al. (1976). However, they add an additional phase to the original SDMP which is the evaluation phase. After the selected alternative is implemented it is subjected to a follow-up and control. This evaluation phase is incorporated into the framework for moving an idea to execution which is developed by Bradley, Bryan and Smit (2012). The framework of Bradley et al. (2012) is more detailed and up-to-date than the strategic decision making process developed by Mintzberg et al. (1976). This framework for idea execution can be seen in Figure 3.

2.2.1.1. Factors influencing the strategic decision making process

Strategic decision making is done under numerous conditions and influences. Shepherd and Rudd (2013) have identified four categories which can influence or steer the SDMP: top management team, strategic decision-specific characteristics, the external environment and internal organisational characteristics. Rajagopalan, Rasheed and Datta (1993) consider the top management team to be a part of the organisational characteristics instead of being a separate category. All these conditions and influences contribute to how strategic decision making is carried out, and therefore influence the outcomes of the SDMP. Shephard and Rudd (2013) have incorporated the SDMP outcomes into the SDMP framework. The SDMP framework, which combines parts of the frameworks developed by Rajagopalan et al. (1993) and Shephard and Rudd (2013), can be found in Figure 4.

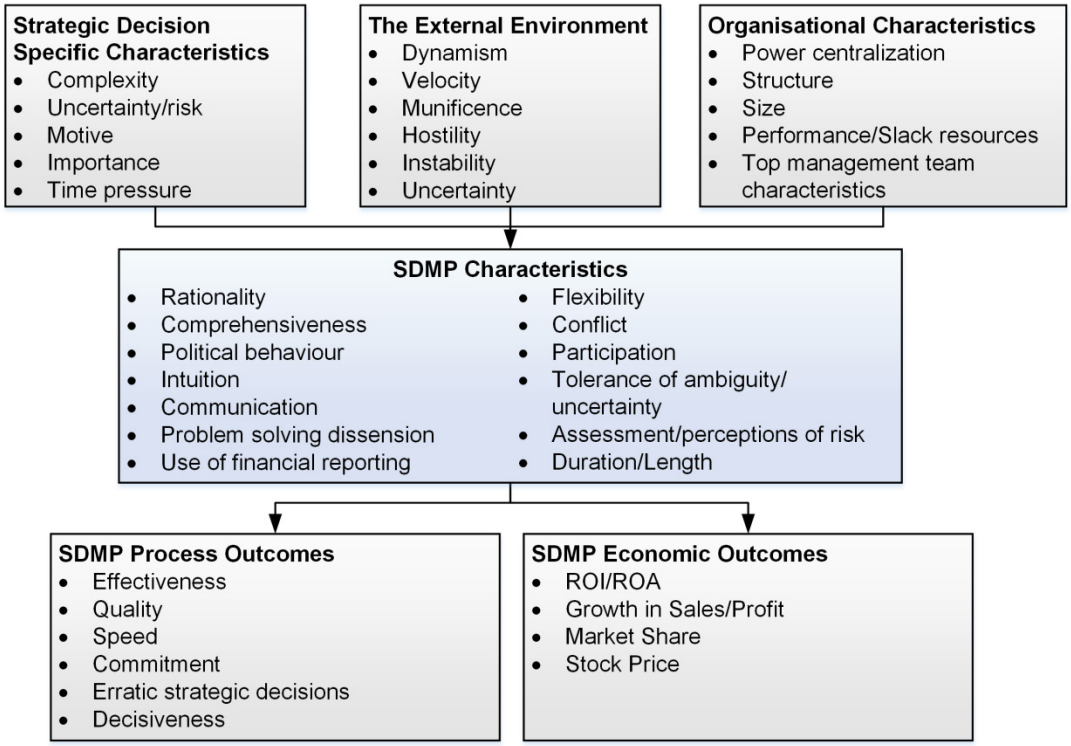

Figure 4 - The strategic decision making process framework

2.2.2. Assessing strategic alternatives based on return and risk

As already said strategic decision making is about gathering enough information, developing strategic alternatives and choose from these strategic options (Shepherd & Rutt, 2013). From Figure 4 can be seen that risk and uncertainty influences the SDMP and that the SDMP results in financial outcomes. However, return and risk can be used not only as external influences or outcomes but also as internal strategic assessment criteria. In the choose phase of Bradley et al.'s, (2012) framework, strategic options are evaluated and based on this evaluation a choice can be made to select the right strategic alternative. This strategic assessment phase is

probably one of the most important phases of the SDMP because this is where strategic options are compared. Devlin (1989) states that the ability of an organisation to secure and sustain competitive advantage, generate strong cash flow and enhance returns is inseparable linked to the effective development and evaluation of strategic options.

2.2.2.1. The assessment of strategic alternatives

In the strategic assessment phase the strategic alternatives are assessed and compared to select the right strategies for the future (Mattacks, 2009). The evaluation of strategic options is done by considering numerous factors which influence the choice of a strategic alternative. Grünig and Kühn (2005) recognise that strategic assessment is done in a couple of stages while Leleur (2012) identifies just two phases in the strategic alternatives evaluation.

In the first three stages mentioned by Grünig and Kühn (2005) there is a partial assessment which is based on internal and external factors to assess whether the strategic alternatives are appropriate for the organisation. Leleur (2012) calls the first phase of strategic assessment scoping, which groups the first three stages of Grünig and Kühn (2005) together. In the scoping phase all relevant information about internal and external factors is gathered for assessing strategic options. Tavana and Banerjee (1995) recognise that this first assessment of the environment, and the opportunities and threats within the environment, is crucial for measuring the strategic value and risk of each strategic alternative. Grünig and Kühn (2005) describe that in the last phase of evaluating strategic options an overall evaluation of the remaining strategic alternatives is made. In this last phase the success potentials, the probability of succeeding in implementing, the possibilities of financing the realisation, and the risk of the planned strategy needs to be evaluated. Accordingly, the second phase of Leleur (2012) is similar to the last stage of Grünig and Kühn (2005) and is about assessing the strategic alternatives with the use of (financial) return and risk analysis. The performance of each alternative should be examined. Leleur (2012) says that in the last assessment phase there is a need for hard methods, thus an analytic analysis of the strategic alternatives.

Grünig and Kühn (2005) and Leleur (2012) both recognise that strategic alternatives should be first assessed on their fit with internal and external factors and then on their performance outcomes. However, they do not go into detail on how this last phase can be constructed. Johnson, Scholes and Whittington (2008) provide a more detailed description of evaluating the viability of strategic options. Johnson et al. (2008) identify three critical criteria for assessing the viability of strategic options: suitability, acceptability, and feasibility. The internal capabilities and external opportunities are seen as two separate criteria for assessment. Mattacks (2009) recognises the same three assessment criteria but arrange them differently by putting feasibility before acceptability. These three assessment criteria are explained in more detail below and are graphically displayed in Figure 5.

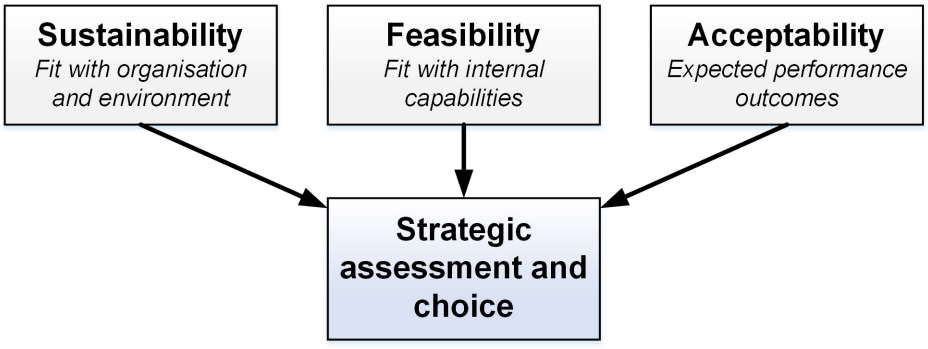

Figure 5 - Three criteria for strategic assessment

Suitability is concerned with whether a strategic alternative addresses the key issues related to the strategic position of the organisation. This requires an assessment of whether a strategic option has a fit with the key drivers and expected changes in the environment, exploit strategic capabilities, and be appropriate in the context of stakeholder expectations (Johnson et al., 2008). According to Nutt (1998) assessing the suitability is a qualitative assessment of strategic alternatives which is about ranking strategic alternatives on all of their advantages and disadvantages to sum up their distinctive features. Suitability is about the fit of a strategic alternative with the external environment and organisational characteristics. According to Mattacks (2009) it is important when reviewing the suitability of strategies to check aspects such as current strategic position, fit with mission and objectives and effect on strategic perspective. The qualitative assessment approach is the least used evaluation tactic. Nevertheless, it leads to the best outcomes in terms of sustainable adoption rate, complete adoption rate and time of complete adoption of the chosen strategic alternatives (Nutt, 1998).

Feasibility is concerned with whether an organisation has the resources and competences to deliver a strategy. It shows whether there are issues with the implementation and changes, with the ability of meeting key success factors, with obtaining competitive advantage or with timing (Mattacks, 2009). According to Johnson et al. (2008) feasibility assesses whether a strategy could work in practise based on two aspects:

- **Financial feasibility**. Financial information shows whether a strategy is likely to be feasible in terms of both cash generation and the availability of required funding.
- **Resource deployment**. For assessing the feasibility of strategic alternatives the resources and competences necessary for a specific strategy should be identified. The effectiveness of a strategy depends on whether such capabilities are available, can be developed or be obtained

Acceptability is about the expected performance outcomes, such as the return and risk, of a strategy and the extent to which these meet the expectations of stakeholders (Mattacks, 2009). Johnson et al. (2008) distinguish three components which determine the acceptability of strategic alternatives: return, risk and stakeholder reaction. Acceptability is consequently about the trade-off between return, risk and stakeholder reaction to assess strategic alternatives. However, stakeholder reaction is usually left out of the assessment because it is hard to quantify and because of the lack of supporting literature. Examining the acceptability can be best done with a quantitative assessment approach such as a cost-benefit analysis, pro-forma income statements, or various kinds of financial analyses like the rate of return, forecasting, and multi-attribute utility development (Nutt, 1998). Friend and Zehle (2004) recognise that the future value of each strategic option should be calculated. This can be done by making a trade-off between the anticipated returns and the risk of a particular strategic alternative. The two components are described in detail below.

- **Return**. The returns are the benefits which stakeholders expect to receive from a strategy. Measuring return is a common way to assess projects, new ventures or strategies (Johnson et al., 2008). An assessment of financial and non-financial return is a key criterion of acceptability of a strategy. According to Socea (2012) financial accounting information helps management to prepare for future activities and decisions.
- **Risk**. All strategic options carry some form of risk. According to Friend and Zehle (2004) evaluation should aim to determine the level of risk connected to strategic options. Risk is about the probability and consequences of a strategic failure. Formal risk assessments are often incorporated into business plans or investment appraisals (Johnson et al., 2008).

2.2.2.2. Trade-off return and risk in the assessment of strategic alternatives

Friend and Zehle (2004) as well as Beasley and Frigo (2007) comprehend that it is necessary to have an optimal balance between the anticipated return and the related risk to reach maximal value. In the evaluation process the potential returns are compared to the associated risk of a strategic alternative. The research of Dean and Sharfman (1996) indicate that organisations which collect information and use analytical techniques for decision making were more effective than those organisations that did not. According Tavana and Banerjee (1995) evaluating potential strategies can be done by calculating strategic value and strategic risk associated with each alternative. Strategic value measures the desirability of an alternative whereas strategic risk measures the possibility of not realising the desired outcomes associated with the alternative. Tavana and Banerjee (1995) have developed seven steps of strategic options evaluation, in which step five and six are concerned with the evaluation of the return and risk:

1. Define environment-related weights.
2. Identify opportunities and threats within each environment.
3. Define weights associated with opportunities and threats.
4. Develop subjective probabilities for each alternative.
5. Calculate the strategic value for each alternative.
6. Calculate the strategic risk for each alternative.
7. Evaluate potential strategies.

In the last step of Tavana and Banerjee (1995) a trade-off between strategic value and strategic risk is made. Higher strategic value increases the desirability of a strategic alternative, while higher risk decreases the desirability of that alternative. Clarke and Varma (1999) also recognise that a trade-off between risk and return could clarify what the right strategic decision is for the organisation. A risk matrix is developed to show how the strategic alternatives score in terms of risks and return, which can be seen in Figure 6.

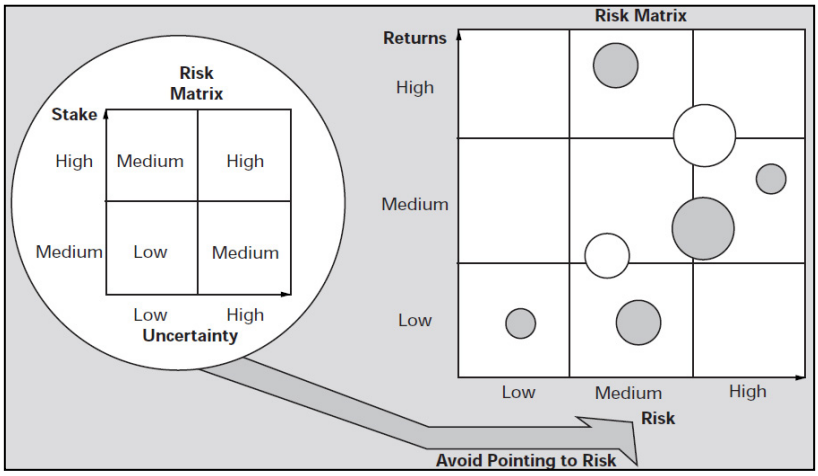

Figure 6 - Trade-off risk and returns of strategic alternatives (Clarke & Varma, 1999)

Boundary setting: risk appetite

The trade-off between return and risk makes it possible to compare strategic alternatives with each other. However, the amount of risk that is acceptable depends on the organisation and is unique for each organisation. An organisation that strives for the strategic alternative with the highest return might find the risk that parallels with this alternative undesirable. To be able to select the right strategic alternative for the organisation boundary setting is necessary. Barfield (2005) recognises that a hunger for returns without a defined appetite for risk can lead to disaster. Failures occur when profits are being chased while risks are poorly

understood. Beasley and Frigo (2007) indicate that before the identified risk can be managed a risk management goal is needed. In this risk management goal boundaries are set which determine the level of risk that is acceptable, also known as the risk appetite. When the risk appetite is set the organisation can assess whether the identified risk are within the acceptable tolerance levels. Frigo and Anderson (2009) suggest seven steps which can be followed for assessing the strategic risk of the alternative strategies:

1. Achieve understanding of the alternative strategies
2. Gather views and data on strategic risks
3. Prepare a preliminary strategic risk profile
4. Validate and finalise the strategic risk profile
5. Compare the risks of the strategic alternatives
6. Choose strategic alternative which fits with strategic risk profile

The seven steps of Frigo and Anderson (2009) show that before a choice can be made the risk appetite of an organisation should be identified. Anderson (2011) and Rittenberg and Martens (2012) define risk appetite as follows: the amount and type of risk that an organisation is willing to pursue or retain. To be able to design and develop a risk appetite profile various elements of risk appetite need to be considered (Anderson, 2011). Rittenberg and Martens (2012) have made an overview of the considerations affecting risk appetite, which can be seen in Figure 7. The risk appetite framework according to Anderson (2011) takes into account several elements such as risk capability, risk capacity, risk management maturity, propensity to take risk and the propensity to exercise control.

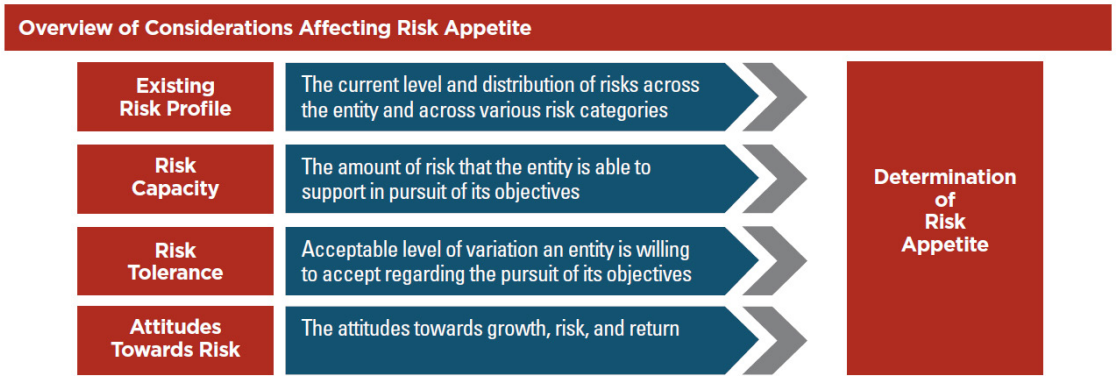

Figure 7 - Overview factors influencing risk appetite (Rittenberg & Martens, 2012)

According to Rittenberg and Martens (2012) there are three approaches to discuss and develop the risk appetite. *Facilitated discussions* combine views of the organisation's leadership and governance bodies to develop a risk appetite statement. *Discussions related to objectives and strategies* is about reviewing and assessing major issues facing the organisation which gives insight into the risk appetite. *Development of performance models* is about using quantitative measures to express the overall risk appetite. These quantitative measures of risk appetite arise through performance modelling. (Rittenberg & Martens, 2012).

2.2.2.3. Conclusion

The first sub-research question, "*How can the expected return and associated risk of strategic alternatives influence the strategic choice in the strategic decision making process?*", can be answered with this part of the literature review. The expected return and associated risk of strategic alternatives determine the acceptability of these alternatives. While a strategic alternative might be suitable and feasible it should also be acceptable. Whether the strategic alternative is acceptable is dependent of the value that is created with that alternative. The

value is in turn determined by the expected return and associated risk. If a strategic alternative is not acceptable, thus does not provide the needed value, it might persuade the organisation to choose a different strategic alternative.

The main focus of this paper is on the use of a return and risk evaluation in assessing strategic alternatives. Yet, preceding this assessment of expected performance outcomes the fit with internal and external factors needs to be examined first. Without this information about the internal and external environment it is not possible to calculate the return and risk. Consequently, the first phase of assessment of strategic alternatives is an assessment based on internal and external factors. The second phase of assessment is based on the expected performance outcomes. This last phase of strategic assessment exists of several steps which should be followed in order to make a proper assessment of the strategic alternatives. By combining information from Tavana and Banerjee (1995) and Frigo and Anderson (2009) it becomes clear that for assessing the performance of strategic alternatives the expected return and associated risk should be compared. With this comparison the strategic alternative can be selected which has the best trade-off between the expected return and associated risk.

In Figure 8 the framework for assessment of strategic alternatives is displayed. Figure 8 clearly shows that the role of return and risk in the assessment of strategic alternatives is in the second phase after an assessment based on internal and external factors. Consequently, this research is going to focus on the ***second phase*** of assessing strategic alternatives.

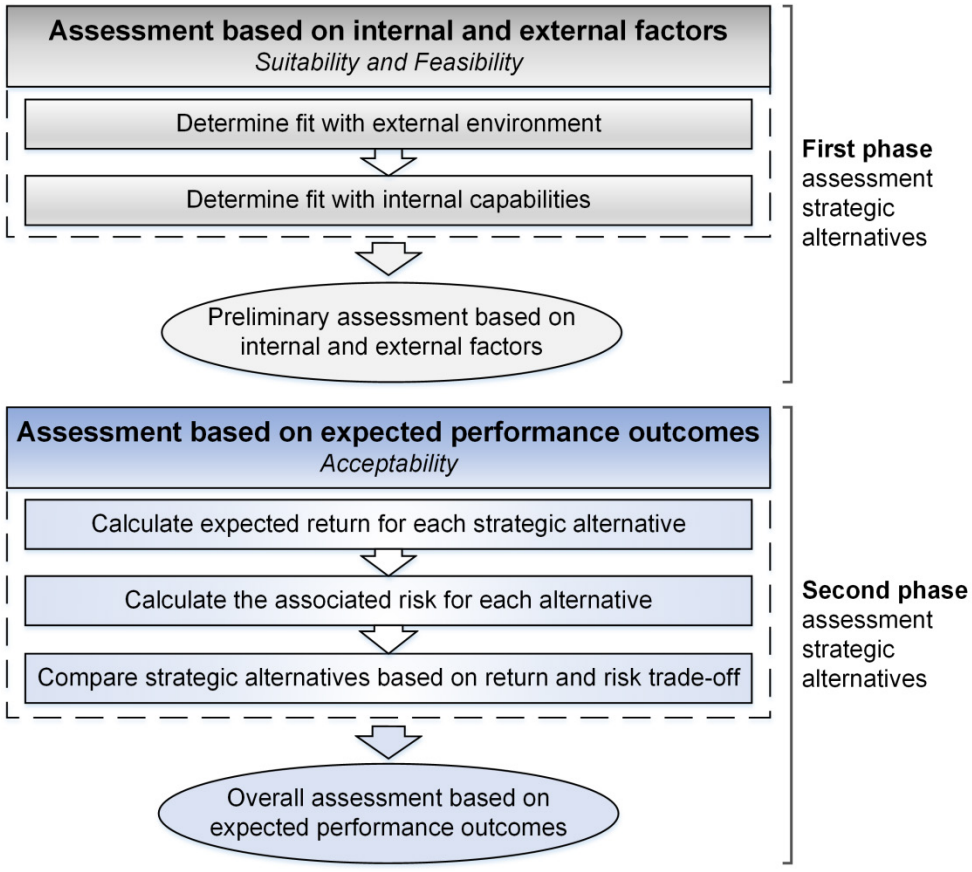

Figure 8 - Assessment of strategic alternatives framework

2.2.3. Assessment strategic alternatives: expected return

Assessing the acceptability of strategic options is about comparing expected performance outcomes to select the strategic alternative with the right trade-off between return and risk. The expected return of strategic alternatives needs to be calculated before it is possible to make a trade-off between return and risk. Expected return can be divided into estimates of financial return and non-financial return. Return cannot always be expressed in a monetary term but it is possible to quantify non-financial returns. According to Nutt (1998) one of the most common assessment approaches is the quantitative assessment approach, which can be used for forecasting, financial analysis and cost-benefit analysis.

Financial return can be calculated with the use of traditional financial analysis such as non-discounted and discounted measures (Atik, 2012). Non-discounted measures are simplistic and easy in use while discounted measures are more complex but more comprehensive. According to Socea (2012) financial accounting information helps management to know what happened in the past and what the present situation is of the organisation. Likewise it provides a quantitative overview of the company. Financial accounting information also helps management to prepare for future activities and decisions. Nowadays, organisations operate in a predictive analytics era (Cokins, 2013). Organisations are using more and more predictive accounting which leads to a predictive view of strategy and operations. With the use of cost projections organisations can translate their plans and actions into monetary terms for strategic decision making, evaluation and validation. The Institute of Management Accountants (2008) define that management accounting is used to assist management in the formulation and implementation of an organisation's strategy.

Non-financial return of strategic alternatives is more challenging to calculate. A method which is frequently mentioned for evaluation more than only financial return is the real options valuation (Mun, 2006b; Johnson et al., 2008). Real options analysis considers that the flexibility of a strategic alternative adds value because of the ability to change of course during implementation. The real options approach involves identifying key sources of uncertainty and recognising, creating, and nurturing options whose values come from reacting to new information about the uncertainties (Triantis, 2003).

The assessment of strategic alternatives through the expected return of those alternatives seems an obvious choice. However, making an evaluation fails in many cases because it is difficult to make realistic forecasts on the long-term financial and non-financial outcomes of strategic alternatives (Grünig & Kühn, 2005). To make sure that the forecasts are as accurate as possible the three mentioned methods for assessing the value are explained below. For each method the most commonly used measures are mentioned, and their advantages and disadvantages are highlighted.

2.2.3.1. Non-discounted methods

The non-discounted cash flow (NDCF) method do not discounts the net future cash flow, and therefore do not consider the time value of money and ignore project, financial and business risks (Kalyebara & Islam, 2014). Non-discounted measures are mentioned by Atik (2012) as one way to assess the value of strategic alternatives. Scholleova, Fotr and Svecova (2012) call these kinds of measures static criterion which indicates that the value of money is not influenced by factors such as time and risk. Non-discounted or static measures are known as the most traditional financial measures used for financial analysis. Traditional financial analysis is frequently used in assessing the acceptability of strategic options (Johnson et al., 2008). Indices of profitability and payback are the most common non-discount or static

measures. According to the research of Scholleova et al. (2012) static criterions are most widely used, around 75% of the organisations use static measures, which is three times higher than the frequency of discounted or dynamic criterions. Non-discounted measures include the accounting rate of return (ARR) and the payback period. The ARR does not use cash flows, but instead it uses net profit and average investment. The payback period uses cash flows, but it does not discount them. These common non-discounted measures of return will be explained into detail below.

Accounting rate of return (ARR) or return on investment (ROI)

A common technique for selecting a strategic alternative is the use of the ARR (Hill, 2008). According to Atik (2012) the ARR is based on the calculation of percentage of expected return on the initial investment. The ARR can be seen as the return on the initial investment, therefore it can also be interpreted as the return on investment (ROI) (Crundwell, 2008). The ARR is not based on the cash flow but on the average net profit and average investment. According to Kalyebara and Islam (2014) the ARR represents the proportion of average annual net profits to the original net investment or the average investment. Bhushan and Rai (2004) indicate that the strategic alternative with the highest ARR is considered to be the most lucrative for investment purposes. The decision rule is that if the ARR is equal or larger than the desired rate of return the strategic alternative is accepted. The formula for ARR is:

$$ARR = \frac{Average\ annual\ net\ profit}{Average\ annual\ sales} \times \frac{Average\ annual\ sales}{Initial/Average\ investment}$$

The mathematical equation in which the *NPt* is the net profit for a particular period, I_0 is the initial or average investment, *t* is the period, and *N* is the total number of periods is as follows:

$$ARR = \left(\sum_{t=0}^{N} NP_t\right) \Big/ I_0$$

The advantage of using the ARR is that it is easy to calculate and simple to understand, many people are familiar with it. The disadvantages of the ARR include that the ARR focusses on the use of net profit instead of cash flow and thus ignores the time value of money (Hill, 2008; Atik, 2012). Shareholder wealth maximisation is calculated in terms of cash flow. Since the ARR does not use the cash flow but the net profit nothing can be said about whether there is shareholder wealth maximisation (Kalyebara & Islam, 2014).

Payback period

According to the research of Scholleova et al. (2010) 27% of the researched organisation use the payback period as a criterion for decision making. Johnson et al. (2008) describe that estimating the payback period is about the length of time it takes before the cumulative cash flows for strategic options become positive. So, the point of time when the investor gets the investment back (Crundwell, 2008). According to Atik (2012) the payback period can be expressed as the number of years it takes the net cash flows after tax to cover the initial investment outlay. Strategic alternatives with a shorter payback period are preferred (Bhushan & Rai, 2004). The decision rule is that if the payback period is equal or less than the desired period the project is accepted, the

shorter the time to cover the initial investment the better (Kalyebara & Islam, 2014). The payback period is given by N in the following mathematical equation in which I_0 is the initial investment outlay, the CF_t is the cash flow for a particular time period, and t is the period:

$$0 = I_0 + \left(\sum_{t=0}^{N} CF_t \right)$$

This mathematical equation is unsolvable by hand. Therefore, a simplified calculation can be used by adding the annual net cash flows to the investment outlay. When the cumulative cash flow, thus the investment outlay plus the cash flows, becomes positive the following equation applies in which t_{neg} the period is when the cumulative cash flow is still negative and the t_{pos} is the period when the cumulative cash flow is positive:

$$Payback\ period = \frac{Cummulative\ cash\ flow\ of\ t_{neg}}{Cash\ flow\ of\ t_{pos}} + t_{neg}$$

The advantages of the payback period are that it is easy to calculate, it is simple to understand and it is a decent measure to see how quickly the initial investment outlay will be collected (Kalyebara & Islam, 2014). However, a disadvantage of the payback period is that it does not take the time value of money into account, which can give a distorted picture (Atik, 2012). In addition, the payback period does not say anything about which alternative will have the most net outcome, it just calculates when the amount invested is earned back (Crundwell, 2008). It does not take the cash flows beyond the payback period into account and it does not consider the strategic alternative's risk. Also, the payback period does not distinguish between strategic alternatives of different sizes in terms of investment outlay. The payback period is thus not a useful measure for the profitability of strategic alternatives but it is a useful measure for the liquidity of strategic alternatives.

Other performance ratios and measures

It is possible to use alternative ratios to assess the value of strategic alternatives instead of the payback period or the ARR. However, the payback period and the ARR give the best representation of the value of a strategic alternative because it compares the amount of money invested with the amount of money resulting from the investment. Using only a profit rate can give a distorted image; an alternative which seems to be the most attractive because of a high profit rate could need an enormous investment to make this high profit rate happen. Organisations who want to use the performance ratios to compare strategic alternative could make use of the balanced scorecard metrics. The balanced scorecard can be used to evaluate the strategy after it is implemented (Aldea et al., 2013). Thereby it is possible to compare the forecasts with the end results and to assess whether expectations were accurate. Each organisation has the choice to select the right ratios which fit the organisation. Michalska (2005) has summarised some commonly used ratios and measurements for each phase of the balanced scorecard, which can be seen in Table 2.

One of the most important advantages of using non-discounted measures is that most of the organisations are familiar with these measures. The measures are easy to understand and results can be compared without trouble (Scholleova et al., 2010). However, because of the simplistic form of non-discounted measures many factors such as risk and time are not taken

into consideration when estimating the value. The time value of money and the influence of risk on the value can change the initial outcomes of the non-discounted measures.

Table 2 - Ratios or measures for each part of the Balanced Scorecard

Ratios or measures Balanced Scorecard	
Financial	***Internal business processes***
• Profit • Profit rate • Cash-flow • ROA • ROE • Sale height • Participation in market	• Length of cycle • Number of failures • Production on one worker • Complaint ratio • Percentage of accepted offers • Team-based effort • Total quality management
Customer	***Learning and growth***
• Level of prices • Customers' rankings • Agreement of deliveries with orders • Time of the realisation orders • Participation in market • Percentage of customers conquered • Percentage of customers kept • Customers' satisfaction • Acquaintance of brand	• Rotation of workers • Investments in new markets and technologies • Expenses on workers' training • Time of introducing innovation on a market • Quality of strategic planning • Partnerships and alliances • Prepare for changes in environment

2.2.3.2. Discounted methods

Discounted methods are also known as dynamic criterions (Scholleova et al., 2010) or discounted cash flows (DCF) methods (Slater, Reddy, & Zwirlein, 1998; Johnson et al., 2008; Bowman & Moskowitz, 2001). Kalyebara and Islam (2014) explain that the DCF method discounts expected net future cash flows using a risk-adjusted discount rate to find the present value, and they consider the time value of money. Discounted measures, as the opposite of non-discounted measures, do include the time value of money and the influence of risk (Scholleova et al., 2010). DCF analysis is a widely used appraisal technique for events such as investments, projects and strategic alternatives. DCF is very important in appraising investments because it creates economic value and it measures shareholder wealth, while the accounting multiples do not measure shareholder wealth (Kalyebara & Islam, 2014). In the DCF method all the cash flows are discounted to their present value at a discount rate that reflects the market price of the strategic alternative's risk (Bowman & Moskowitz, 2001). Discounting reflects the fact that cash generated early is more valuable than cash generated later (Crundwell, 2008; Johnson et al., 2008). The cash flow and the discount rate are two important inputs of the DCF method, however they are both estimates. Usually the cash flows are discounted by the organisation's cost of capital or a rate that appropriately reflects the risk of the strategic alternative. Estimating the discount rate is a crucial occasion since a change of 1% point may have a significant impact on the investment appraisal decision (Kalyebara & Islam, 2014). Atik (2012) mentions the weighted average cost of capital (WACC) as the discounting factor for determining the present value. Brandao and Dyer (2005) explain that the use of WACC is a practical matter because it is difficult to determine the actual risk of unusual innovative investment alternatives. The WACC is calculated by taking into account the cost of equity, the cost of debt, the equity/debt ratio, and the tax rate. The WACC can be

calculated with the following formula in which E is the amount of equity, D is the amount of debt, R_e is the cost of equity, and R_d is the after-tax cost of debt:

$$WACC = R_e * \left(\frac{E}{E+D}\right) + R_d * \left(\frac{D}{E+D}\right)$$

According to Kalyebara and Islam (2014) there are three steps in using the DCF method for making a choice between projects, investments, or strategic alternatives. The first step is to project the future cash flows for the useful life of the strategic alternative. These projections are based on past experiences and expectations. Second, the risk-adjusted discount rate is determined. Finally, the organisation should evaluate the available possible strategic alternatives and should choose the strategic alternative which maximise the organisation's value. Several discounted cash flow methods are discussed below.

Net present value (NPV)

Net present value (NPV) is, together with the internal rate of return (IRR), the most frequently used discounted measure (Scholleova et al., 2010). According to Bhushan and Rai (2004) NPV measures the present value of a multi-year investment. All the cash inflows and outflows are discounted to the same point of time. Atik (2012) gives a more detailed explanation: The NPV is the sum of all the cash flows discounted to the present using the time value of money. The time value of money is expressed by the discount rate (Crundwell, 2008). Kalyebara and Islam (2014) explain that the NPV can be calculated by discounting the future net cash flows after tax using the organisation's risk-adjusted cost of capital. All the present values of the future cash flows are added up and the initial investment outlay is subtracting resulting in the NPV. When the NPV of a strategic alternative is positive it means that this alternative is acceptable (Atik, 2012). The strategic alternative with the largest positive NPV ranks the best and should be chosen (Bhushan & Rai, 2004; Devlin, 1989). The decision rule for the NPV is to accept strategic alternatives if the NPV is equal or greater than zero. When multiple strategic alternatives have a NPV larger than zero the one should be chosen with the highest NPV. A positive NPV means that the strategic alternative will add value to the organisation. The NPV can be calculated with the following equation in which I_0 is the initial investment outlay, the CF_t is the cash flow for a particular time period, the CF_N is the cash flow for the final period, the r is the discount rate, t is the period, and N is the total number of periods:

$$NPV = I_0 + \left[\frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \cdots + \frac{CF_t}{(1+r)^t} + \frac{CF_N}{(1+r)^N}\right]$$

The mathematical equation for the NPV is as follows:

$$NPV = I_0 + \left[\sum_{t=0}^{N} \frac{CF_t}{(1+r)^t}\right]$$

The advantages of using the NPV for appraising strategic alternatives is that it considers the time value of money, it uses cash flows, it considers the strategic alternative's risk, and it calculates how the value of the organisation maximises or decreases. The disadvantages of using the NPV as the discounted measure are that it is difficult to determine the discount rate and that financing costs are left out of the calculation

(Kalyebara & Islam, 2014). The value of the discount factor is determined by management and is normally the WACC (Crundwell, 2008). An inaccurate discount rate has a significant impact on the NPV.

Profitability index (PI) or Benefit-cost ratio (BCR)

According to Johnson et al. (2008) the cost-benefit concept suggests that money value can be put on all costs and benefits of a strategy. Its major benefit is that it is forcing managers to be explicit about the various factors that influence strategic choice. However, it is difficult to quantify all relevant costs and benefits. Mostly BCR only considers the financial costs and benefits and leave all other costs and benefits out of calculation. Crundwell (2008) explains that the BCR is the same as the profitability index (PI), which is the ratio of present value cash flows generated to the present value of cash flows consumed. Bhushan and Rai (2004) say that the BCR compares the total cost of implementation with the total monetary benefits derived after implementation. According to Kalyebara and Islam (2014) the PI can be calculated by discounting the future net cash flows, and then adding up the resulting present values. The sum of all present values divided by the initial investment will result in the PI. A strategic alternative is considered to be rational if it had a PI above one and the one with the largest value of PI is considered to be the best option (Bhushan & Rai, 2004). The decision rule is to accept strategic alternatives with a PI of one or greater than one. When the PI is larger than one the present value of the future cash flows is larger than the initial investment outlay resulting in a positive net present value. The PI can be calculated with the following equation:

$$PI = \frac{PV\ of\ future\ cash\ flows}{Initial\ investment\ outlay}$$

The profitability index can be expressed mathematically as follows in which I_0 is the initial investment outlay, the CF_t is the cash flow for a particular time period, the r is the discount rate, t is the period, and N is the total number of periods:

$$PI = \left[\sum_{t=0}^{N} \frac{CF_t}{(1+r)^t}\right] \Big/ I_0$$

According to Crundwell (2008) the PI is one of the most commonly used techniques. However, the disadvantages of using the PI is that it cannot distinguish between the sizes of projects and strategic alternatives and there is the possibility of misleading when dealing with two strategic alternatives which are mutually exclusive (Crundwell, 2008; Kalyebara & Islam, 2014).

Internal rate of return (IRR)

As already said, internal rate of return (IRR) is one of the most frequently used discounted measure (Scholleova et al., 2010). The IRR is also called the rate of return (ROR) and the discounted cash flow rate of return (DCFROR) (Crundwell, 2008). Atik (2012) describes that IRR is the rate that equalises the present value of estimated cash inflows divided with the initial investment amount. The IRR is the discount rate that equates the present value of the expected future net cash inflows with its initial outlay or which results in a NPV equal to zero (Kalyebara & Islam, 2014). In general, the higher the IRR the more profitable the strategic alternative is. Strategic alternatives which have

an IRR that is higher than the required rate of return are acceptable (Bhushan & Rai, 2004). The decision rule for using the IRR is that when the IRR is equal or greater than the cost of capital after tax then the strategic alternative is accepted. When multiple strategic alternatives have an IRR larger than the cost of capital after tax the one is selected with the highest IRR (Kalyebara & Islam, 2014). The IRR is given by *r* in the following equation in which I_0 is the initial investment outlay, the CF_t is the cash flow for a particular time period, *t* is the period, and *N* is the total number of periods

$$NPV = I_0 + \left[\sum_{t=0}^{N} \frac{CF_t}{(1+r)^t}\right] = 0$$

The mathematical equation can be translated to the following equation in which the IRR is mentioned:

$$0 = I_0 + \left[\sum_{t=0}^{N} \frac{CF_t}{(1+IRR)^t}\right]$$

The advantages of using the IRR are that it considers the strategic alternative's risk, it considers the time value of money, and it uses cash flows. One of the disadvantages of the use of the IRR is the assumption that net cash flows can be re-invested at a rate equal to IRR (Kalyebara & Islam, 2014). Another disadvantage of using the IRR is that it is significantly more difficult to calculate and it can conflict with other DCF techniques (Crundwell, 2008).

Discounted payback period

The calculation of discounted payback period is similar to the non-discounted payback period; the only difference is that the cash flows used in the calculation are discounted to the present value (Crundwell, 2008). Discounted payback period is the number of years it takes for the discounted net cash flows to cover the initial investment outlay and additional discounted cash outflows (Scholleova et al., 2010). The decision rule is that if the discounted payback period is equal or less than the desired period the project is accepted, the shorter the time to cover the initial investment the better (Kalyebara & Islam, 2014). The discounted payback period is given by *N* in the following formula in which I_0 is the initial investment outlay, the CF_t is the cash flow for a particular time period, the *r* is the discount rate, and *t* is the period:

$$0 = I_0 + \left[\sum_{t=0}^{N} \frac{CF_t}{(1+r)^t}\right]$$

Just like with the payback period this equation is unsolvable by hand, the discounted cash flows need to be calculated and added to the investment outlay, which results in a cumulative discounted cash flow for each year. When the year when the cumulative discounted cash flow becomes positive is known the payback period can be calculated. The following formula can be used in which t_{neg} the period is when the cumulative discounted cash flow is still negative and the t_{pos} is the period when the cumulative discounted cash flow is positive:

$$Discounted\ payback\ period = \frac{Cummulative\ discounted\ cash\ flow\ of\ t_{neg}}{Discounted\ cash\ flow\ of\ t_{pos}} + t_{neg}$$

The discounted payback period makes comparison possible between strategic alternatives without the distortion of not including the time value of money and risk (Crundwell, 2008).

A DCF analysis of the expected return of strategic alternatives results in a comprehensive comparison since it includes the time value of money and risk (Atik, 2012). DCF methods are frequently used in investment appraisal decisions to examine whether it is worthwhile committing resources to a strategic alternative. However, there are some problems when using a DCF analysis for evaluation strategic alternatives (Slater et al., 1998). *The first problem* is that implementation issues can occur because of several difficulties such as inaccuracy in forecasts, bias in forecasts, opportunistic behaviour by managers and the use of an inappropriate discount rate. Triantis (2003) mentions that estimating expected cash flows and estimating the discounted rates are the two most important problems. A DCF analysis requires among others forecasts of R&D expenditures, investment in fixed and working capital, sales volumes, prices, and operation costs. Slater et al., (1998) state that uncertainty makes the forecasts most likely wrong. *The second problem* is that the DCF approach does not account for the flexibility that may be present in a strategic alternative (Bowman & Moskowitz, 2001). The DCF method devalues the strategic reasons for implementing an alternative that does not produce clear and quantifiable cash flow streams (Slater et al., 1998). *Another problem* of the DCF method which is mentioned by Schulmerich (2005) is that it excludes management from making decisions on emerging opportunities during the lifetime of the alternative. The DCF method does not take into account the flexibility of the strategic alternatives, which can add additional value (Brandao & Dyer, 2005).

2.2.3.3. Real options analysis

According to Johnson et al. (2008) another way to assess the acceptability of strategic alternatives is with the real options approach. Real options explicitly accounts for the value of future flexibility (Bowman & Moskowitz, 2001). Flexibility is the ability to affect uncertain future cash flows; management has the ability to change the course of a strategy in order to create more value (Brandao & Dyer, 2005). Atik (2012) explains that the real options approach is developed in order to assess the value of flexibility in an investment. The real options analysis shows that having flexibility has additional value because decision are made or changed at some point in time according to strategic and competitive opportunities, which can lead to different outcomes (Atik, 2012).

The real options analysis takes multiple decision pathways into consideration. Multiple decision pathways are possible because of high uncertainty and management's flexibility in choosing the optimal strategies. Flexibility implies the ability to make midcourse strategy corrections. Real options explicitly consider how management will react to a broad range of scenarios and therefore it captures the value of flexibility (Triantis, 2003). When information is available and uncertainty resolved, the best strategy can be chosen (Mun, 2006b). An organisation that uses real options analysis to value investment opportunities is able to evaluate the impact of corporate projects on shareholder value (Triantis, 2003). There are many real options associated with strategic alternatives and which should be taken into account. Triantis (2003) has four categories of options: growth options, contraction options, switching options and contractual real options. Schulmerich (2005) and Mun (2006b) mention

some more options such as the option to grow, defer, wait and see, abandon, delay, expand, contract, choose or to switch.

Triantis (2003) describes that there are four main techniques that can be utilised to value real options, which are also mentioned by Brandao and Dyer (2005). These valuation techniques for real options are the Black-Scholes formula, the binomial pricing model, risk-adjusted decision trees and Monte Carlo simulation. The Black-Scholes and binomial techniques are mainly useful for problems with simple structures, such as a single source of uncertainty and a single decision. Risk-adjusted decision trees and Monte Carlo simulation are more general and powerful techniques that can be used in a more complex setting (Triantis, 2003).

Black-Scholes formula

Atik (2012) mentions that the real options approach is based on the option pricing model of Black and Scholes, which has been developed to assess the value of flexibility in capital investments. The Black-Scholes formula can be used to provide a rapid estimate of the value of a real option, but will be accurate only under very restrictive conditions (Triantis, 2001). This method is restricted to a single decision to be made regarding an investment, such as whether to exercise a stock option at its maturity date.

Binomial option pricing model

The binomial option pricing model is more flexible because it allows optimal timing as well as more general specifications of the distribution of the underlying asset's value. The method is called binomial because the value of the underlying asset can take on only one of two possible values. At each moment the decision has to be made to exercising the option at that time or holding on to the option for another period. The binomial models have the limitation that there are problems with involving multiple uncertainties or with complex options (Triantis, 2001).

Monte Carlo simulation

The Monte Carlo simulation allows considerable flexibility in the number of uncertainties in the decision problem (Triantis, 2001). A large number of possible scenarios are generated for the underlying cash flow or value based on assumed distributions for each uncertainty. The real option value is calculated for each of these scenarios, and the average of these values is discounted back to the present.

Risk-adjusted decision tree

The risk-adjusted decision tree includes multiple decisions and uncertainties over time. The basic principle of these trees is that risk-adjusted probabilities are specified for the systematic market uncertainties and actual probabilities are used for the diversifiable risks (Triantis, 2001; Brandao & Dyer, 2005).

Even with the use of the valuation techniques mentioned above valuing real options is problematic since quantification is extremely challenging and complex (Johnson et al., 2008). Slater et al. (1998) says that quantification is challenging because there might not be an observable underlying asset, the forecast of cash flows might be highly unpredictable, or the risk adjusted rate can vary over the option's lifetime. Most firms find it impractical or impossible to model complex strategic investments. Brandao and Dyer (2005) state that real options is complex because of the high degree of mathematical sophistication necessary for modelling, which is generally beyond the skills of most practitioners. Bowman and Moskowitz (2001) also recognise the difficulties of using the complex real options approach

as a strategic assessment tool. The complexity may explain the limited use of real options analysis in strategic planning. While real options analysis gives a more comprehensive and accurate assessment of the value of strategic alternatives, applying it is complex.

2.2.3.4. Conclusion

When making an assessment of the return of strategic alternatives three methods can be used: the non-discounted method, the discounted method, and the real option analysis. Combining the DCF method with the real options analysis results in valuable insights to the assessment of the attractiveness of strategic alternatives (Slater et al., 1998). However, even though the real options analysis is used somewhat more frequently nowadays it is still extremely complex (Slater et al., 1998). In paragraph 2.2.2.1 is mentioned that strategic alternatives are first assessed based on their fit with internal and external factors. After this first assessment the strategic alternatives are evaluated based on their returns and risk. The real options analysis shows the importance of considering risk as a vital factor which influences the value of strategic alternatives. The Monte Carlo simulation is a useful method for assessing the risk of strategic alternatives and will be examined in the next paragraph. Real option analysis is in this situation used in the context of assessing the risk of strategic alternatives and the effect on the value of strategic alternatives. The other three real option analysis tools are not explored in the remainder of this research since it is too complex and difficult to understand for managers. Organisations who do want to assess strategic alternatives with the use of the black-Scholes formula, binomial option pricing model, or the risk-adjusted decision tree might want to examine the work of Triantis (2003) or Brandao and Dyer (2005).

For evaluating the expected return of strategic alternatives the choice can be made between non-discounted and discounted measures. The discounted measures are preferred because the return of strategic alternatives is displayed most accurately since time value of money and risk are taken into account. Since the main objective of choosing a strategy is to maximise the organisation's present value, the measurement technique that helps managers achieve this objective more effectively should be preferred (Kalyebara & Islam, 2014). Naturally, the organisation has to choose for itself which measurement technique best displays the change in value for the organisation. Two popular DCF methods used to make strategic decisions are the NPV and the IRR. NPV is expressed in cash flow whereas IRR expresses in a percentage or discount rate. Especially the NPV is most frequently used for making comparisons between strategic alternatives (Crundwell, 2008; Atik, 2012). While an organisation has to choose for itself which technique to use, it is highly recommended to use either the NPV or the IRR since they reflect best the change in value for an organisation. With this part of the literature review an answer is given on the sub-research question, "*What are the best methods for estimating the expected return of strategic alternatives?*".

2.2.4. Assessment strategic alternatives: associated risk

Clarke and Varma (1999) explain that risk can be best understood in the terms of a financial gain or loss, improvement or impairment in strategic position or a threat to existence. The higher the risk the greater the potential gains or losses. Uncertainty is defined by unclear or undefined nature, scale, likelihood, or influencing factors. Although risk and uncertainty are not synonymous they are generally used interchangeably (Atik, 2012). Risk is the probability of an undesirable outcome while uncertainty implies the unknown probability of outcomes. Atik (2012) defines risk as the probability of receiving an actual return which is different than expected; there is variability in returns. Beasley and Frigo (2007) mention that risk shows how poorly a strategy will perform if the 'wrong' scenario occurs. Ayyub (2012) takes a mathematical approach in defining risk. Ayyub (2012) explains that risk can be defined as the

potential of losses and rewards resulting from an exposure to a hazard, or as a result of a risk event. Risk can be calculated by the probability of an event occurring and the outcomes or consequences associated with the occurring of the event (Ayyub, 2012). Risk can be evaluated by the following formula where risk is the product of likelihood of occurrence and the impact severity of occurrence of the event:

$$Risk\left(\frac{Consequence}{Time}\right) = Likelihood\left(\frac{Event}{Time}\right) \times Impact\left(\frac{Consequence}{Event}\right)$$

Roberts, Wallace and McClure (2003) describe that strategic risk affects the development and implementation of an organisation's strategy. Strategic risk influences the long-term performance of the organisation. There are three risks which can be considered as strategic risk: market risk, corporate governance risk and stakeholder risk. The market risk refers to the market being highly variable and a fast-changing environment. The corporate governance risk includes risk relating to the reputation of the organisation and the ethics with which it operates (Roberts et al., 2003). There are some typical examples of strategic risks like incorrect assumptions for strategic plans, internal changes compromise original strategic plans, and external changes compromise original strategic plans. Strategic risk mostly applies over a long period of time and is therefore more complex and difficult to model and assess.

2.2.4.1. Strategic risk management in strategic decision making

Strategic planning involves balancing many factors that are risky. Risk should be an important part of the decision making process since without including an assessment of risk poor decisions may be made (Mun, 2006a). According to Beasley and Frigo (2007) risks have to be included in the evaluation process of strategic alternatives to equalise the potential returns with the associated risks that each strategic alternative brings. An optimal balance between performance goals and the related risk is needed to maximise value when setting strategic goals. When risks are taken into account management is better positioned to evaluate the strategic alternatives to ensure that the associated risks are within the risk appetite. Strategic risk management helps organisations to recognise the risks of strategic alternatives and it makes it possible for them to take quick actions and avoid unwanted risk (Beasley & Frigo, 2007). Risk analysis of a strategy may lead an organisation to choose an alternative that has a lower return if it has less risk than an alternative with higher returns but more risk (Hulett, 2004). According to Mun (2006a) in financial theory the strategic alternative with higher return will in most cases have a higher amount of risk. Therefore, instead of relying purely on profits, a strategic alternative should be evaluated based on its returns as well as its risks. Consequently, risk must be identified and evaluated correctly before the organisation can make strategic decisions. According to Roberts et al. (2003) strategic risk management is about the identification and management of risks to ensure that the organisation finishes in an acceptable distance of the original goal. Strategic risk management should be able to detect if there are changes in the course of action and predict the consequences. Based on this information organisation can reconsider and initiate corrective actions.

The first step in strategic risk management is to find a way to evaluate the organisation strategic business risk. The influence of a wide range of possible events and scenarios on the execution of the strategy and on the organisation's value has to be identified and evaluated (Beasley & Frigo, 2007). As already mentioned in paragraph 1.1 the ultimate objective of a strategy is to maximise shareholder value or shareholder wealth, in an ethical way. Therefore, risk management activities must be justified in terms of shareholder wealth creation. When a strategic alternative brings on risks that endanger the shareholder wealth this strategic

alternative should be challenged (Beasley & Frigo, 2007). Beasley and Frigo (2007) created the strategic risk management framework in which the risks endangering shareholder wealth are displayed in a pyramid form. This framework can be seen in Figure 9.

Figure 9 - Strategic Risk Management framework

The mentioned risks in the strategic risk management framework all apply to the strategic alternatives. Each strategic alternative has to deal with some of these risks influencing the performance outcome or value of the organisation. Gatti (2008) goes one step further by saying that each risk can occur at a certain phase of the strategic alternative. According to Gatti (2008) the risk belonging to a project or strategic alternative are specific to the alternative in question and therefore there can be no exhaustive generalised description of the risks. Gatti (2008) defines three broader risk categories, also known as phases, to which the risks can be allocated. These three categories have distinct risk profiles which impact the performance outcome in each own way. A strategic alternative goes through two phases; the development and the implementation phase, or as Gatti (2008) puts it the pre-completion and the post-completion phase. Consequently, the risks of strategic alternatives can be covered by:

- Pre-completion phase risks
- Post-completion phase risks
- Risks common to both phases

Pre-completion phase risks of strategic alternatives

The pre-completion phase refers to the start of the (operating) activities, before the strategic alternative is generating positive net cash flows. Usually in this phase large investments have to be made in the form of purchasing buildings, facilities, machinery, technological knowledge or investments in the research and development. Only the risks most relevant for strategic alternatives are mentioned here.

> **Planning risk** occurs when the timing and necessary resources are determined for various activities. Internal planned change is often carried out in response to the strategic plan (Roberts et al., 2003). Delays in completing one activity can have major consequences for other activities. The risk is that the strategic planning may not be useable because of delays or problems. This is known as planning risk (Gatti, 2008). Planning risk is also recognised in the strategic risk management framework of Beasley and Frigo (2007).

Innovation risk or technological risk arises from the inability to change, create new offerings, or to fulfil unmet needs better than competitors (Frigo & Ramaswamy, 2009). Several factors could influence the innovation risk such as the organisational capabilities or the support of the information systems. When an organisation is unable to meet the demands of customers better than their competitors there is a high innovation risk. Sometimes strategic alternatives require the use of technologies that are innovative or not fully understood. The risk arises that the organisation is not able to meet the requirements and cannot use the required technologies (Gatti, 2008). Roberts et al., (2003) recognise that most organisations could not operate without complex computer support. The risk of a major information technology (IT) failure is the nightmare scenario for many large organisations.

Post-completion phase risks of strategic alternatives

In this phase the strategic alternative is implemented and generating some net cash flows. The performance of the strategic alternative can be influenced by many factors such as the offering of products or services, and the operating activities. The risks in this phase have often a direct effect on the performance outcomes of the strategic alternatives like the NPV or the IRR (Gatti, 2008). There are several risks but only the ones influencing the outcomes of strategic alternatives are mentioned.

Supply risk arises when the needed input for production operations cannot be obtained or when the input has not the needed quantity or quality (Gatti, 2008). According to Frigo and Ramaswamy (2009) organisation must learn how to manage the complexity of the supply chain and logistical networks. Supply risk can also occur when the negotiated prices exceed the retail price of the products or services.

Investor risk is at the top of the strategic management risk pyramid and refers to the ability to generate future growth and return on investment as reflected in the strategic plans and the organisational capabilities to execute the plans. Everything that will limit the success of the organisation needs to be considered in assessing the investor risk like the risk of unethical activities. Customer and market risk both influence the ability of an organisation to create value. Customer risk is driven by the ability to fulfil the needs of the customers and can be reduced by enhances customer communication and customer information (Frigo & Ramaswamy, 2009). Market risk will be explained below.

Operational risk occurs by every event that would limit the ability of the organisation to deliver its offerings (products or services) to the customers (Frigo & Ramaswamy, 2009). Operational risk is defined as the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems or from external events. According to Roberts et al. (2003) operational risk is related to the production process of the organisation. Not only the production process but also the resources base, the people involved, and the legal controls influence the operational risk of an organisation. Operational risk in its turn influences the ability of an organisation to create value. Gatti (2008) explains that operational risk occurs when the functions of the production plant underperforms resulting in a lower efficiency and in the end cost overruns.

Market risk or demand risk is driven by underlying trends in the serving of the customers such as the ability of customers to buy the offerings of an organisation (Frigo & Ramaswamy, 2009). Gatti (2008) defines market risk as the risk that revenue

generated is less than anticipated. This negative outcome might be the result of too optimistic projections of the quantity of output sold or sales prices.

Risks found in both the pre- and post-completion phases

There are several risks that can be found both in the construction and operational phases of the strategic alternatives.

Interest rate risk refers to the fluctuations in interest rates during the time period in which the strategic alternative is implemented. According to Gatti (2008) the interest rate risk influences both domestic and international alternatives. Organisations have to decide whether or not to cover against the interest rate risk. However, according to Roberts et al. (2003) it is reasonable to assume that there will be changes in interest rates for an alternative covering multiple years. During the development of strategic alternatives an assumption will be made that there will be some variation in the interest rates and that this variation will be contained within reasonable limits.

Exchange rate risk emerges when some of the financial flows of an organisation are stated in different currencies (Gatti, 2008). This is often the case for international organisations. If a strategic alternative will lead to exploring opportunities in countries with a different currency this could result in exchange rate risk.

Brand risk includes the risk of damaging the brand and damage to the reputation of the organisation and is thus closely related to **reputation risk.** Reputation risk refers to the communication with stakeholders and the internal and external engagement of stakeholders. The reputation or brand risk can be diminished by co-creating with stakeholders (Frigo & Ramaswamy, 2009).

Environmental risk concerns the potential negative impact of the strategic alternative on the surrounding environment. Some examples of environmental risk are building a plant that can damage the surrounding environment or public opposition because of the strategic alternative having major environmental impacts (Gatti, 2008). Environmental risks can cause an organisation to reconsider or discard certain strategic alternatives.

There are many more risks not mentioned in this literature review which might be relevant for a strategic alternative. However, like Gatti (2008) mentioned that risk is specific for each strategic alternative. The risk areas from Beasley and Frigo (2007) provide at least a guideline for organisation to examine which risks might apply to their strategic alternatives. In the end it all comes down to the risk of not being able to maximise the shareholder value or wealth. When all the risk of the strategic alternative are identified the effect of these risks on the performance outcome or shareholder wealth of the strategic alternatives needs to be assessed.

The Institute of Management Accountants (2007) makes a distinction between qualitative and quantitative approaches for risk assessment. Curtis and Carey (2012) mention the advantages and disadvantages of both the qualitative and the quantitative approach. The qualitative assessment is quick and easy, provides information about more than financial impact, and is understandable. The disadvantages are that there is limited differentiation between levels of risk, it is imprecise, cannot be numerically aggregated, and a cost-benefit analysis is restricted. In turn, the quantitative technique allows numerical aggregation, permits cost-benefits analysis, and enables risk-based capital allocation. However, the quantitative approach for risk assessment can be time consuming and costly, and assumptions may not be

obvious (Curtis & Carey, 2012). Since risk assessment is used for making a trade-off between return and risk and the return measurements are mainly quantitative, the risk assessment techniques will also be mainly quantitative. Figure 10 shows the qualitative and quantitative approaches to risk assessment.

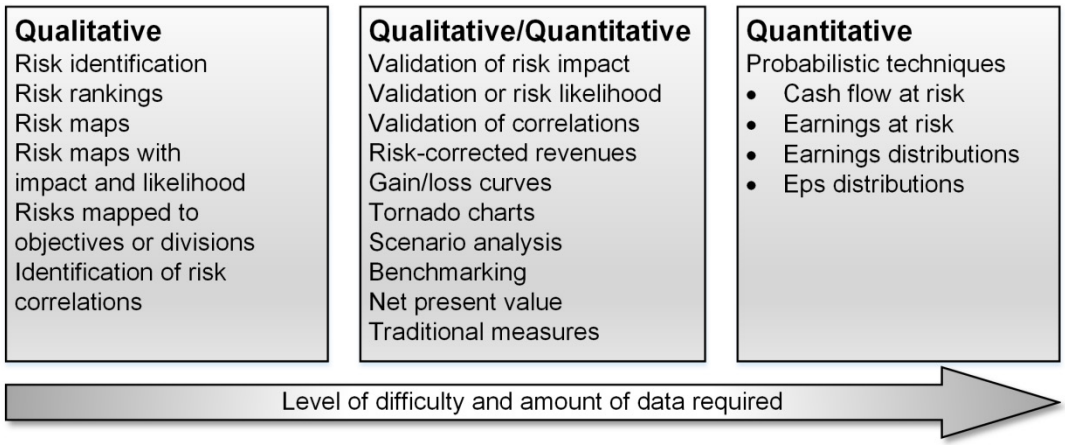

Figure 10 - Qualitative and quantitative approaches to risk assessment

Atik (2012) mentions several methods and approaches for assessing the risk in strategic decision making such as the adjusted discount rate, adjusted forecasted cash flows, using computer simulation (Monte Carlo), certainty equivalents, beta analysis (CAPM), sensitivity analysis, scenario planning, probability analysis (decision trees), real options model and fuzzy sets. A few of these methods are already covered; the adjusted discount rate and adjusted forecasted cash flows are mentioned as methods for accurately determining and predicting the return of strategic alternatives (Scholleova et al., 2010). The real options analysis explained in the previous paragraph uses several risk assessment approaches to make a comprehensive measurement of the returns of strategic alternatives. These risk approaches are mainly quantitative such as the risk-adjusted decision trees and the Monte Carlo analysis (Triantis, 2001). In the research of Arnold and Hatzopoulos (2000) several techniques for assessing risk of major projects are examined. According to the research sensitivity and scenario analysis is most frequently used, by approximately 85% of the researched organisations. The Beta analysis is rarely used to assess risk (Arnold & Hatzopoulos, 2000). Simulation analysis is more frequently used nowadays because of the uprising in computer programs which are able to make a simulation (Kalyebara & Islam, 2014). This paper is going to elaborate on three risk assessment techniques for evaluating the viability of strategic alternatives: scenario analysis, sensitivity analysis and simulation analysis (Monte Carlo).

2.2.4.2. Scenario analysis

According to Lee and Lee (2006) scenario analysis evaluates the potential variability in the outcomes of a project or strategic alternative. For instance, the target outcome is expressed as the NPV of the strategic alternative. Scenario analysis is used to compute several NPVs for a strategic alternative based on different scenarios. Holroyd, Grant and Dyer (2007) explain that scenarios are not predictions of the future, but represent a reasonable range of potential outcomes. The initial analysis of NPV is based on the estimates of expected cash flows and is called the base-case scenario. From this base-case a number of possible scenarios can be created, which are typically two other scenarios: the worst-case and best-case scenario (Mun, 2006a). The best-case and worst-case analyses are not very informative. It is no surprise than an asset will be worth a lot in the best-case scenario and not so much in the worst-case. Holroyd et al. (2007) give an example of five scenarios which may be developed.

1. Surprise free scenario – the continuation of present trends.
2. Optimistic scenario – the conditions of key indicators in the future improve.
3. Pessimistic scenario – the conditions of key indicators in the future are worse.
4. Disaster scenario – the conditions of key indicators worsened beyond expectations, also known as the worst-case scenario.
5. Transformation scenario – the conditions of key indicators improves beyond expectations, also known as the best-case scenario.

Lee and Lee (2006) state that the worst-case and best-case scenarios provide a likely range in which the strategic alternative's NPV will fall. Crundwell (2008) explains that changes in a set of parameters are grouped into a scenario. Changes in parameters could be different values for variables such as sales volume, sales price, marketing costs, advertising costs, etc. (Crundwell, 2008). Based on the changes in these parameters the NPV can be calculated for each scenario (Mun, 2006a; Kalyebara & Islam, 2014). The worst-case scenario will typically have lower sales volume, lower prices, higher costs, shorter product life, lower salvage value, and so on (Lee & Lee, 2006). In comparison, the best-case scenario should have better than expected sales volume, prices, costs, product life, etcetera. If the worst-case scenario has a negative NPV management may reconsider implementing that strategic alternative. However, the NPV of the best-case scenario might be so appealing that the management is willing to take the risk of having the worst-case scenario (Lee & Lee, 2006). According to Holroyd et al. (2007) each scenario can be evaluated according to the probability of becoming reality and ranked to its desirability.

According to Holroyd et al. (2007) there are several conditions for using the scenario analysis. Scenarios are best used when examined over the long term and when there is a considerable amount of predictability and uncertainty. When there are more than five scenarios it becomes difficult to identify and assess the possible changes. Each scenario should be reasonable and plausible. The use of scenario analysis in assessing the risk of strategic alternatives has some advantages: scenario analysis is easy to use to explore a range of what could happen, it helps to think about what could happen instead of what is expected to happen, and risk is better understood because there is a need for critical thinking. Nevertheless, scenario analysis has some important limitations. One of these limitations is that scenarios tend to oversimplify an issue. Another limitation is that the outcomes of the scenario analysis cannot be used to estimate the outcome of a strategic alternative; it is just an indication to understand the possible array of futures (Holroyd et al., 2007). One of the most important limitations is that scenario analysis is subjective because of human bias. Someone has to determine which scenarios to use, causing the bias (Kalyebara & Islam, 2014).

2.2.4.3. Sensitivity analysis

Another approach for determining the risk is a sensitivity analysis also known as *what-if* analysis (Drury, 2008). Each variable or parameter has a pre-specified amount based on some prediction or forecast, which is also known as the base-case. In the sensitivity analysis is measured what a change in amount for each variable could do to the resulting net outcome (Lee & Lee, 2006). According to Johnson et al. (2008) important assumptions underlying a strategy can be questioned and challenged to test how sensitive the expected return is to each of these assumptions. Sensitivity analysis examines what the effect is of an individual variable on, for instance, the NPV. NPV is most frequently used when making a sensitivity analysis as the expected return affected by the other variables (Crundwell, 2008; Drury, 2008; Sullivan, Wicks and Koelling, 2009). This approach is useful for understanding which variables drive or impact the bottom line net revenues the most (Mun, 2006a). Drury (2008) mentions several

variables which could impact the NPV like the sales volume, selling price, variable costs, and the cost of capital. Crundwell (2008) gives the example of determining the NPV at two or three different discount rates. This establishes how much the NPV changes with a change in discount rate, so how sensitive the NPV with respect to the discount rate. Sensitivity is the rate of change of a variable with respect to another variable while the values of all other variables are constant (Crundwell, 2008). Sullivan et al. (2009) describe that sensitivity analysis is used to examine whether a decision among project alternatives should be reversed.

Consequently, one method for doing the sensitivity analysis is to change each individual variable from its base-case by some amount, like 5 or 10 percent, while holding other variables constant at their pre-specified values (Lee & Lee, 2006). The resulting outcome (NPV) can be computed and recorded or graphed. When the NPV graph is steep this indicates that the variable has a major impact. When the NPV graph is more gently sloped it shows that the variable has not that much influence. A useful sensitivity tool for graphically displaying the results of the sensitivity analysis is the spiderplot. A spreadsheet application can be used to generate the spiderplot, in this spreadsheet application a sensitivity analysis is made between the economic outcome and several variables (Sullivan et al., 2009). Another method for doing the sensitivity analysis is combining it with scenario analysis. By determining the worst-case and best-case values for each variable the NPV can be calculated as each variable adjusts to their worst-case or best-case estimates while all other variables are held constant. This combination of sensitivity analysis with scenario analysis determines which worst-case or best-case values affect the NPV the most (Lee & Lee, 2006). Drury (2008) also mentions this kind of method by saying that the sensitivity analysis shows with how much the variables may change before the investment results in a negative NPV.

Strategic alternatives can be compared by using the sensitivity analysis to see whether change in variables, such as an increase or decrease of 10% for the sales price, has a higher effect for one strategic alternative compared to other strategic alternatives (Mun, 2006a). It can be examined which strategic alternatives are more sensitive to changes in important variables, these strategic alternatives are deemed to be more risky. According to Sullivan et al. (2009) the sensitivity graph technique can be considered to compare two or more strategic alternatives. A spider plot can be used to compare strategic alternatives based on for instance their cash flow, to choose the right strategic alternative. The results of the sensitivity analysis of each strategic alternative can be plotted in a figure to make a comparison. However, for more than three alternatives interpreting the results becomes difficult (Sullivan et al., 2009).

One of the most important limitations of using the sensitivity analysis is that the number of possible combinations or conditions can be quite large and examining them all might be time-consuming (Sullivan et al., 2009). Drury (2008) mentions another important limitation; the sensitivity analysis can only examine changes in one variable at a time while all other variables stay the same. It is particular interesting what a combination of changes in several variables could do to the resulting NPV. Kalyebara and Islam (2014) explain that with the sensitivity analysis there is the same limitation as the scenario analysis. There is a human bias because someone has to choose which variables are examined in the sensitivity analysis.

2.2.4.4. Monte Carlo simulation

The modern development of computers and related software resulted in the increased use of Monte Carlo simulation as an important tool for analysis of project uncertainties (Sullivan et al., 2009). Computers made it possible to create models that simulate reality and help make predications, while accounting for randomness and future uncertainties (Mun, 2006a). The use

of such computer programs avoids in a certain extent the human bias mentioned in the previous two risk assessment approaches (Kalyebara & Islam, 2014). Scenario and sensitivity analysis examine only a few values of each variable. Simulation analysis attempts to portray random variables by using the probability distribution to generate all possible outputs (Lee & Lee, 2006). Therefore, Monte Carlo simulation can be seen as an extension of the traditional scenario and sensitivity analysis (Mun, 2006a). Monte Carlo simulation has the ability to deal with multiple uncertainties, especially when they are correlated to each other (Triantis, 2003). The Monte Carlo simulation choses scenarios randomly, this simulation is named after the famous gambling capital of Monaco (Crundwell, 2008). Monte Carlo simulation can be used for risk analysis, risk quantification, sensitivity analysis, and prediction (Mun, 2006a). According to Hulett (2004) Monte Carlo simulation is a well-understood tool to evaluate the impact of uncertainties on the key measures of success that attach to a strategic plan. With the use of Monte Carlo simulation several issues can be quantified which are important for decision making. Hulett (2004) gives several examples for which Monte Carlo could be used:

1. To assess whether the desired target is going to be achieved, such as the ROI or NPV of the strategic plan. This tells whether the strategic alternative should be pursued.
2. To evaluate the differences in results of two or more competing strategic options. This comparison will help to choose between competing strategies.
3. Examine which risk drivers or other environmental factors should be targeted to enhance the strategic alternative's chance of success. It might be possible to improve the strategy's projected results by limiting the threats and enhancing the opportunities.

In the Monte Carlo simulation all kinds of scenarios are simulated in which the expected return is adjusted by changes in variables which influence the expected return. Each variable which could affect the outcome is assumed to have a probability distribution with a known mean and variance. In each simulation the computer analysis uses a random number generator to select values for each variable's probability distribution as the basis for the NPV calculation (Mun, 2006a; Crundwell, 2008). This process is repeated thousands of times which each time random numbers from probability distribution. The statistical distribution of the NPVs is plotted and the average NPV and its variance are computed. Simulation analysis gives an estimated distribution of potential NPVs (Lee & Lee, 2006). In other words, the calculation of the NPV with the Monte Carlo analysis is done with thousands of different scenarios and the results from these scenarios are compiled and used to make decisions (Mun, 2006a). Monte Carlo simulation generates random outcomes for probabilistic factors to imitate the randomness of the original problem (Sullivan et al., 2009). Mun (2006a) explains that simulation analysis is in essence an enhanced version of sensitivity and scenario analysis but automatically performed for thousands of times while accounting for all the dynamic interactions between the simulated variables.

Triantis (2003) explains that Monte Carlo simulation is a powerful tool for assessing the risk of strategic alternatives. However, it is used infrequently which might be a surprise. One of the reasons why this method is not adopted as often, as the scenario or sensitivity analysis, is that it may be too complex for management to understand. Another limitation of the use of simulation analysis is that the output is only as accurate as the inputs. There will be an inaccurate NPV distribution when inappropriate probability distributions, means and variances are used as inputs (Lee & Lee, 2006). The Monte Carlo simulation forces the simulated outcomes to follow distributions, which indicates that there are some kinds of boundaries set resulting in human bias (Mun, 2006a).

2.2.4.5. Conclusion

When examining the possibilities for assessing the risk of strategic alternative three methods are explained in more detail: the scenario analysis, the sensitivity analysis and the Monte Carlo simulation. A risk assessment has to be made because it ensures that there is an optimal balance between the performance goals and the associated risk since risk could affect the expected value of strategic alternatives. Organisations can use a risk assessment to identify which strategic alternative is acceptable in terms of expected return and whether this alternative does not exceed the risk appetite of the organisation. The risk assessment method should be able to provide an understandable comparison between strategic alternatives. While the Monte Carlo simulation is a powerful tool and it makes an accurate assessment of risk, it is complex for making an easy comparison. The sensitivity analysis might be the best method for assessing the risk of strategic alternatives since it is possible to plot the results of multiple strategic alternatives in one graph. Even though, it is not useful to plot more than three strategic alternatives in one graph, the graphs of each strategic alternative can be easily compared. The sensitivity analysis should stay within sensible limits, much like a scenario analysis, and may consider a worst-case and best-case scenario to determine the range of possible outcomes. Much like choosing the return assessment method the same applies for choosing the risk assessment method, organisations should determine for themselves which one could provide them with solid and useable information. Recommended is that organisations should determine for themselves how complex and far reaching the assessment should be. Usually organisations will go for an easy, quick and understandable assessment. Therefore, organisations might want to choose the scenario or sensitive analysis, or a combination of both. With this last part of the literature review an answer is given to the sub-research question, "*What are the best methods for estimating the associated risk of strategic alternatives?*".

3. Design and develop the method

This chapter describes how the method for assessing strategic alternatives based on the expected return and associated risk is designed and developed. In the first part of this chapter the conceptual model is designed to get an understanding of the method and the steps within the method. In the second part of this chapter the steps within the method are described into detail, choices and assumptions made are explained, and examples are provided. Within this chapter an answer is given on the following sub-research question:

- What are the steps in the method for assessing strategic alternatives based on their expected return and associated risk?

3.1. Designing the conceptual model

The method for assessing strategic alternatives based on expected return and associated risk consists of two phases. The first phase is concerned with estimating the expected return of strategic alternatives, providing an initial comparison between the strategic alternatives. The second phase is about the estimation of the associated risk influencing the expected return of strategic alternatives. When both phases are completed a comparison can be made between the strategic alternatives based on the expected return and associated risk. The two phases and the steps within these phases are explained in the following paragraphs.

3.1.1. Estimating the expected return of strategic alternatives

As established in the literature view, there are three ways to determine the return of strategic alternatives; by using non-discounted methods, discounted methods, or real option analysis. This research is using a combination of non-discounted and discounted methods. Real option analysis is not used for determining the expected return because of its complexity. For estimating the return the NPV and the IRR are preferred, but the other non-discounted and discounted methods are also considered. Organisations have to choose for themselves which method displays best the expected return of the strategic alternatives. For instance, if an organisation uses the ARR measure previously to determine the value of the organisation it might want to use the ARR measure also for assessing strategic alternatives.

However, before an estimation can be made of the expected return of a strategic alternative, it is crucial to gather the necessary information. The ***first step*** of this phase is the submission of the needed accounting information. According to Kalyebara and Islam (2014), financial accounting information is one of the main sources of information supporting the strategic decisions. Crucial for the estimations and calculations is the quality of the accounting information; the output of the estimation is only as good as the input. If an organisation uses accounting information which does not reflect the reality then the estimation will also not be reflecting a realistic future. To ensure that the quality of the accounting data is sufficient, it is suggested that information from financial statements is used. The accounting information is needed to set up a base year representing a stable situation of the organisation on which the predictions will be made. Each strategic alternative will lead changes and therefore deviations on the base year. By predicting these changes the base year can be altered to represent the situation in which a strategic alternative is implemented. The accounting information of the base year will be used for the calculations and estimations.

To ensure that organisations entered the right accounting information a calculation is made of the net outcome of the current period, thus the base year. The ***second step*** in this phase is the calculation of the free cash flow of the organisation's base year. Organisations can evaluate whether the net outcome calculated in the method is coherent to the own calculated net

outcome of that period. There are several net outcomes calculated for the base year such as the gross profit, the operating income, the net profit, and the free cash flow. Especially, the last two outcomes are important in the method. Almost all the NDCF and DCF methods use the free cash flow in their calculations. Only the ARR does not use the free cash flow, but uses the net profit instead. The information from the free cash flow calculation for the base year is used for the calculations of the expected return and the associated risk.

A strategy influences the current situation of the organisations leading to several changes for the organisation. Each strategic alternative has its own impact on the organisation and therefore each strategic alternative has its own influence on the value of the organisation. To be able to estimate the expected return of strategic alternative it is needed to determine what kind of changes a strategic alternative could cause. Since the expected return is calculated the focus will be on all the changes that will influence the financial outcome of an organisation. For instance, one of the most important changes a strategy could cause is the change in the sales, which will lead to a change in the net outcome of an organisation. The ***third step*** is to submit the required information on the strategic alternatives. Organisations have to predict which kind of changes could occur with each strategic alternative. Predictions have to be made about the influence of a strategic alternative on the sales volume, the price of products or services, the production costs and the investment needed. Unfortunately, the reliability of this step is disputable since these proposed changes are predictions and there is no way of knowing whether the changes will actually occur.

With the use of the accounting information and the information about the strategic alternatives some intermediate calculations can be made for determining the expected return of the strategic alternatives. The ***fourth step*** of this phase refers to the intermediate calculations of the necessary data, which is used to compute the return of the strategic alternatives. This step will not be seen by the user of the method since it is happening in the background. For the entire prediction period it is necessary to calculate the net profits, the free cash flows, the cumulative cash flows, the discounted free cash flow, and the cumulative discounted cash flows. This data is necessary to be able to calculate the NPV and the other measures.

The last and ***fifth step*** of this phase is calculating the expected return and displaying the expected return of each strategic alternative. The NPV, the IRR, the PI, the discounted payback period, the ARR, and the payback period of each strategic alternative are shown. This step is not only about displaying the expected return of each strategic alternative, but also about making a comparison between the strategic alternatives. For each measure of return is determined which strategic alternative is preferred based on the decision rules mentioned in the literature review. For instance, for the NPV measure the strategic alternative with the highest NPV will be the one that is preferred to be actually implemented. With this last step an assessment is made of the strategic alternatives based on their expected return. Depending on which measure an organisation prefers the organisation can use the information to support the strategic decision making.

3.1.2. Estimating the associated risk of strategic alternatives

Three methods for determining the associated risk of strategic alternatives are explained in the literature review; scenario analysis, sensitivity analysis and Monte Carlo simulation. Just like for the return estimation organisations should determine for themselves which method for estimating the associated risk could provide them with solid and useable information. In this method two of the three methods are used to estimate the associated risk: sensitivity analysis

and Monte Carlo simulation. Critical for making the estimations is the free cash flow calculation and the submitted information about the strategic alternatives.

This method does not involve a complex qualitative assessment of the associated risks of strategic alternatives. Risk is in this method associated with the predicted changes of a strategic alternative and the chance of these predictions altering. For the return assessment some predictions are made about the changes caused by a strategic alternative such as the influence on the sales volume, the price of products or services, the production costs and the extra investments needed. The risk is determined by visualising that those changes will be different than predicted and its influence on the expected return. Consequently, the risk assessment phase makes use of the information already imported in the previous phase of return assessment. The two methods and the steps for each method are explained in the next two sub-paragraphs.

3.1.2.1. Sensitivity analysis

Sensitivity analysis is used to determine the sensitivity of the expected return of strategic alternatives to changes in the predicted variables. For the four variables determined in the step "required information for strategic alternatives" a prediction is made of the changes occurring because of the implementation of a certain strategic alternative. However, what is predicted is not always going to happen in reality; sometimes predicted change is does not happen as planned or does not happen at al. The sensitivity analysis addresses the chance of the variables not changing as predicted. By letting one variable change differently than predicted while holding the others constant the sensitivity of the expected return to that variable can be determined. By comparing multiple strategic alternative can be determined which alternative is most sensitive to changes in a variable. The strategic alternative which is most sensitive has also the highest risk of the expected return being different.

Sensitivity analysis is used to show what would happen if a variable does not change as is predicted. In this situation sensitivity analysis is combined with the scenario analysis. For each variable determined in the first phase of the method a worst-case (minimum) and best-case (maximum) scenario is set through a range. This range determine the boundaries of the sensitivity analysis. For instance, the sales volume can change in a range of 10% around the prediction. The boundaries are usually set while using common sense, like it is unlikely that the variable is going to change lower than the worst-case scenario. The import of the needed information for the sensitivity analysis is the ***first step***. With the use of the information for the sensitivity analysis and the information of the previous phase calculations can be made. The intermediate calculations are the ***second step*** which will happen in the background unseen by the organisation. These intermediate calculations generate the output information for the sensitivity analysis. The ***third step*** of the sensitivity analysis is displaying the output. The output information is displayed for each strategic alternative and shows what the change of one variable will do to the expected return. The information from the calculations can be translated to a sensitivity graph. The sensitivity graphs and the tables can be used to make a choice between the strategic alternatives based on their associated risk.

3.1.2.2. Monte Carlo simulation

Monte Carlo simulation is used to determine the most likely performance outcome of each strategic alternative and the chance of a negative outcome. The Monte Carlo simulation creates thousands of scenarios in which the variables determined in the previous phase change randomly. Each scenario leads to a different expected return because of the randomly chosen variables influencing the outcome. Consequently, Monte Carlo simulation simulates all kind

of scenarios in which the expected return is adjusted by changes in the randomly chosen variables. With the use of the Monte Carlo simulation all possible scenarios are considered and the most likely outcome can be determined. The statistical distribution of the expected return can be plotted and the average can be calculated.

Monte Carlo simulation is just like sensitivity analysis combined with scenario analysis since there are boundaries needed for the forecast. For each variable a worst-case (minimum) and best-case (maximum) scenario is set through the use of a range. The boundaries of the Monte Carlo simulation have to be set with the use of common sense. The ***first step*** for the Monte Carlo simulation is determining the boundaries of the variables. This information can be used to run the thousands scenarios with randomly chosen variables within the determined boundaries. The running of the scenarios is the ***second step***, and includes making the intermediate calculations for the Monte Carlo simulation. The last and ***third step*** for the Monte Carlo simulation is showing the output of the simulation. Graphs and tables can be used to show the distribution of the performance outcome.

The two phases and the steps within these phases are displayed in the conceptual model for assessing strategic alternatives based on the expected return and associated risk. This model can be found as Figure 11.

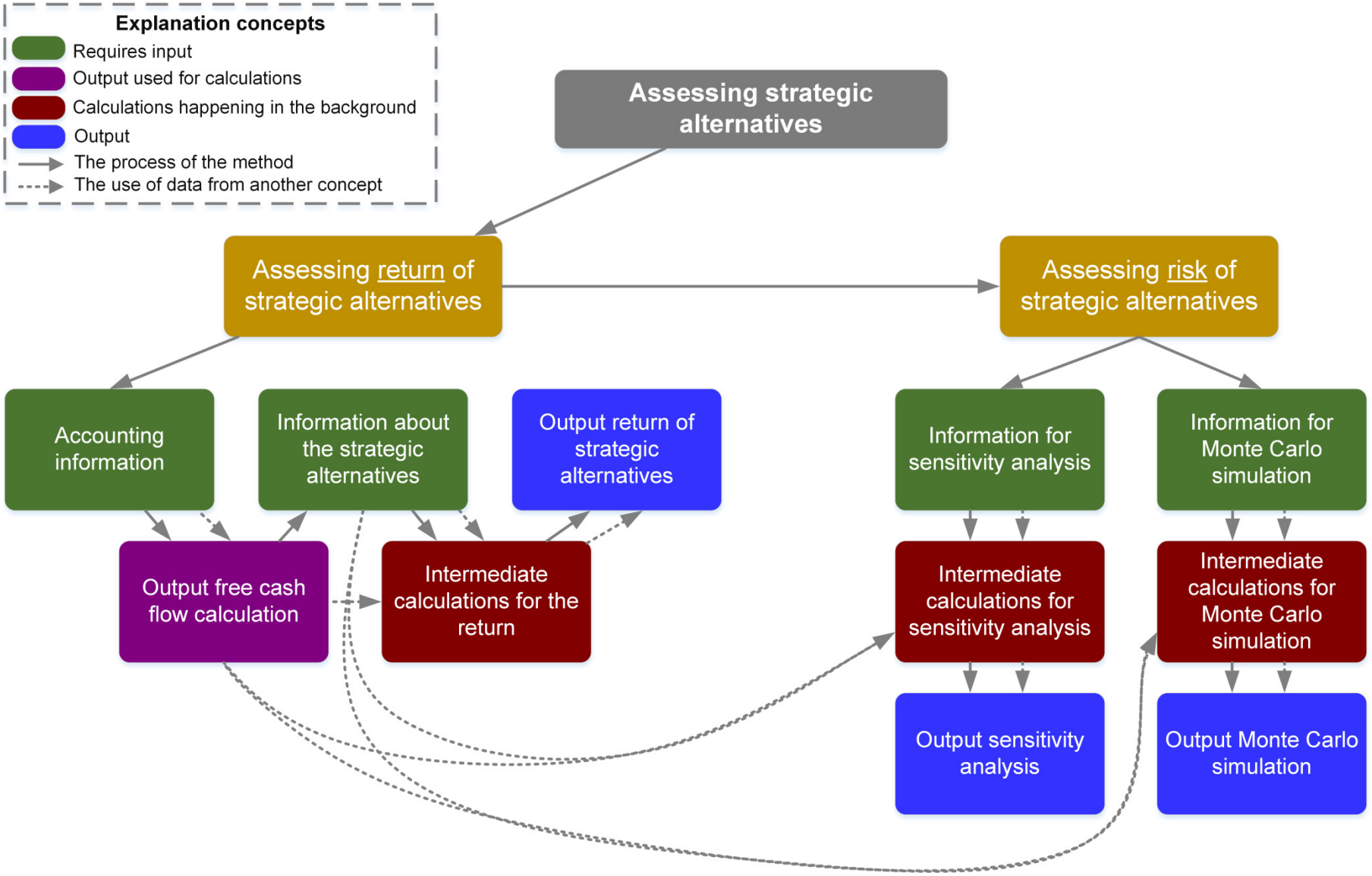

Figure 11 - Conceptual model for assessing strategic alternatives based on return and risk

3.2. The steps for estimating the expected return

The steps of the method for estimating the expected return of strategic alternatives are described. Each step has its own concepts, motivations, and examples which will be explained in the following paragraphs.

3.2.1. Required accounting information

As already said, the first step of the return phase is the submission of the needed accounting information into the method. The financial accounting information is one of the main sources of information and it is used for calculating the expected return and associated risk. The organisations have to submit the accounting information of the current period, which will be the base year for the calculations and estimations. Since the quality of the accounting information is important for accurate and reliable outcomes, it is suggested to use financial statements as a source. When there are no financial statements available organisations have to find another source for the accounting information which is as reliable as possible.

For calculating the return of strategic alternatives it is important to know the net profit and the free cash flow. The net profit and the free cash flow are used in the calculations for estimating the expected return. The net profit can be derived from the income statement. The income statement is the financial statement that reports the revenues generated and expenses incurred over an accounting period. The free cash flow of organisations can be derived from the cash flow statement. The cash flow statement is the financial statement that shows how cash flowed into and out of an organisation during a specific period of operation.

It is possible to ask organisations for their current year's net profit or free cash flow. However, there is a need for more information since it would be difficult to determine how changes in variables influence the net profit or free cash flow of an organisation. Additional information is needed to determine how the net profit and the free cash flow are realised. The additional information needed has to be comprehensible and accessible by all kind of organisations. Therefore, terms are used which are understandable by others than financial managers. To determine the net profit information from income statements can be used like the revenues, cost of goods sold, depreciation, and interest. To determine the free cash flow information from the cash flow statement has to be used like the change in net working capital and capital expenditures.

In the DCF method the expected future net cash flows are discounted using a risk-adjusted discount rate to find the present value of the cash flows (Kalyebara & Islam, 2014). Therefore, it is necessary to know what the discount rate of an organisation is. Unfortunately, determining the appropriate discount rate is a challenging task for many organisations. The weighted average cost of capital (WACC) is usually used as the discount rate because of its simplicity and ease of calculation.

Figure 12 shows the entering of accounting information into a database, from which information can be drawn when needed for making the calculations and the estimations. All the necessary accounting information mentioned in Figure 12 will be explained into detail below.

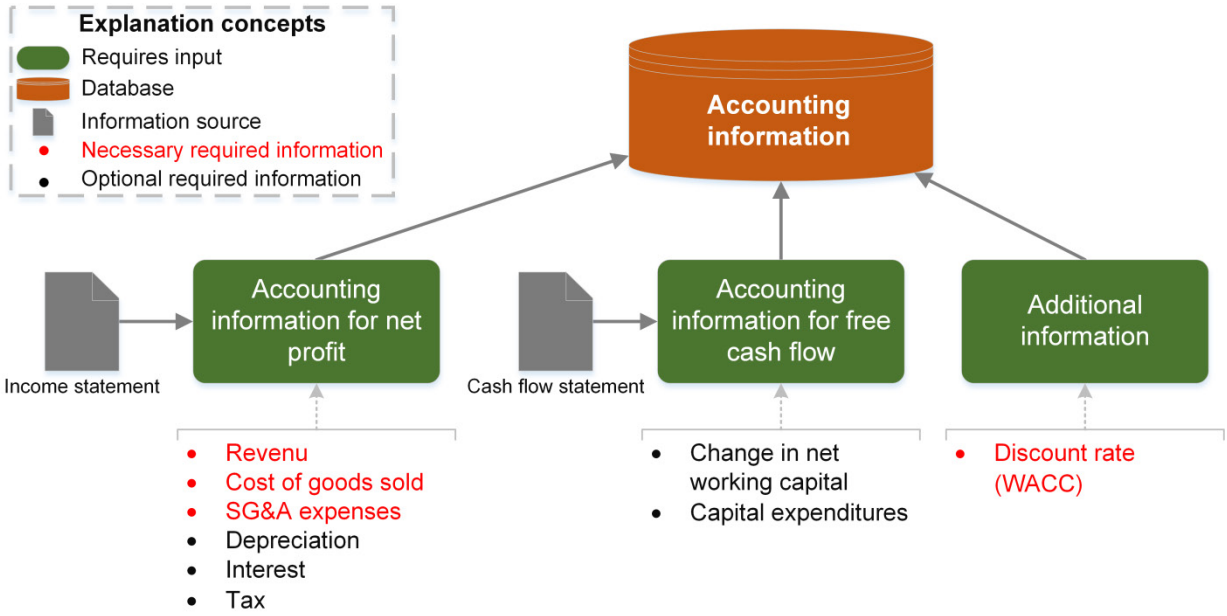

Figure 12 - Required accounting information

Revenue is the economic resources, cash and receivables, earned during a time period. Crundwell (2008) defines the revenue, also known as sales or net turnover, as the total amount invoiced to the customers for the products or services provided. The revenues are usually defined by the sales volume and the sales price for the products or services provided.

Cost of goods sold, or the cost of sales, is the sum of the direct costs in producing products or services. Consequently, the cost of goods sold is all the production related expenses (Crundwell, 2008). The cost of goods sold is the costs of materials and labour incurred to produce the products or serviced provided, these costs are also knows as the direct costs or manufacturing costs. For instance, the cost of goods sold are for a manufacturing organisation the purchase of raw materials, the employment of labour, or other direct costs like the costs of energy or rental. The cost of goods sold is usually determined by the sales volume and the production costs.

SG&A expenses are the sales, general and administrative expenses, and are also known as the overheads. The SG&A expenses refer to the expenses that are not directly related with the production activities of an organisation (Crundwell, 2008). However, these expenses are needed in running the organisation like the distribution and marketing costs, the administration costs, and the research and development costs. The difference between overhead and SG&A expenses is that depreciation is included in the overhead and not in the SG&A expenses. While SG&A are usually fixed costs they tend to have a relationship with the sales volume for organisations in a financially stable situation.

Depreciation can be defined as the spreading out of the costs of an asset over the life of the asset, usually a number of years (Crundwell, 2008). It is the allocation of the costs of an asset over its economic life. The total depreciation for an asset must add up to the original cost of the asset. The depreciation is deducted from the profit to account for the purchases of fixed assets. Depreciation is thus the reduction in value of a fixed asset over its expected life, intended to reflect the usage or wearing out of the asset.

Interest is the amount paid or received on al loan as compensation for making the loan. Interest is the charge for borrowing money and is deducted from the profit before the amount of owed tax is calculated. Consequently, the interest reduces the tax charged (Crundwell, 2008). Interest can also be referred to as financial income or expense. It is possible for organisations to pay interest as well as to collect interest depending on whether the organisation is a borrower or a lender.

Tax is the financial charge or other levy paid to the government or state. In some countries it is a flat rate while in others it is a sliding scale. Usually when an organisation has a loss in one year it is carried forward to the following year, reducing the taxable income of that following year with the amount of loss. Income statement often show the amount of tax paid for the current year. Organisations can choose to insert a known tax percentage for each year or the amount tax paid for the current year. When the amount is entered it will be automatically translated into a percentage which will apply for the upcoming years of the prediction.

Change in net working capital is the net working capital for the current period minus the net working capital for the previous period. The net working capital is the current assets minus the current liabilities (Crundwell, 2008). Usually the change in net working capital is determined by three items which can be found on the cash flow statement. The first item is the change in trade receivables which are the credit sales made to others. The second item is the change in inventories which are the raw materials, work in progress, and finished products. The third item is the change in trade payables which are the short-term liabilities owed for purchases made on credit. These three variables added up form together the change in net working capital.

Capital expenditures are the result from investing activities, which report the acquisition or disposal of long-term assets. Capital expenditures are the net investments in or liquidation of operating non-current assets. The change in fixed assets between the current period and the previous period represents the change in cash position as a result from investing activities (Crundwell, 2008). Some examples of capital expenditures are:

- purchase of intangible non-current assets;
- purchase of tangible non-current assets;
- sale of intangible non-current assets;
- sale of tangible non-current assets;
- disposal (acquisition) of activities;
- and, change in financial receivables.

Discount rate is the interest rate used in DCF analysis to determine the present value of future cash flows. Determining an appropriate discount rate is not an easy task for organisations. As already said, the WACC is frequently used as the discount rate. The WACC takes into account the cost of equity, the cost of debt, the equity/debt ratio, and the tax rate. The WACC can be calculated with the following formula in which E is the amount of equity, D is the amount of debt, R_e is the cost of equity, and R_d is the after-tax cost of debt:

$$WACC = R_e * \left(\frac{E}{E+D}\right) + R_d * \left(\frac{D}{E+D}\right)$$

To make it easier for organisations they can choose to automatically insert a discount rate of 15%, or they can enter a self-determined discount rate as input.

3.2.1.1. Example for the required accounting information

Table 3 displays an example of the required accounting information section. The table gives an example of the layout and shows how organisations can enter their accounting information.

Table 3 - Example layout required accounting information

Accounting information for the base (current) year		
Information needed for calculating net profit (from income statement)		
Revenue		€
Cost of goods sold		€
SG&A expenses		€
Depreciation		€
Interest		€
Tax		€
Information needed for calculating free cash flow (from cash flow statement)		
Change in net working capital		€
Capital expenditures		€
Additional information needed		
Discount rate	Automatic or non-automatic (by hand)	%

3.2.2. Free cash flow calculation

The second step of the return phase is to calculate the free cash flow of the organisation's current period, or base year. This calculation provides a control for organisation to see whether the accounting information is correctly submitted. The free cash flow information is also used for the calculations of the expected return and associated risk. Free cash flow is one of the most important net outcomes since it is the most liquid assets of an organisation. The free cash flow creates economic value to the organisation and is used to measure the shareholder value. According to Kalyebara and Islam (2014) the cash flow is the lifeblood of the organisation. Most of the methods use the free cash flow to determine the expected return, only the ARR measure uses net profit to determine the value of a strategic alternative. Net profit includes non-cash items such as depreciation expenses. When the depreciation is extracted it drives down the net profit while it does nothing to the net cash flow. Consequently, the free cash flow does not include the non-cash items.

Not only the net profit and free cash flow are calculated, but also other net outcomes such as the gross profit, operating income, and net profit before tax. Figure 13 displays the free cash flow calculation, for which accounting information is used. The free cash flow information is shown to the organisation and inserted in a database. Information from the free cash flow database can be used for expected return and associated risk calculations. Each net outcome from Figure 13 will be described below.

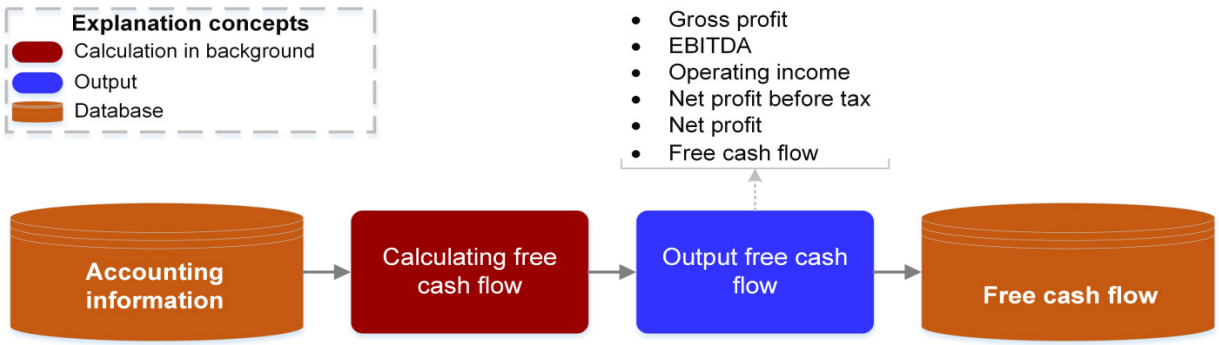

Figure 13 - Free cash flow calculation

The ***gross profit*** can be calculated by subtracting the cost of goods sold from the revenues. ***EBITDA*** are the earnings before interest, taxes, depreciation and amortisation. From the revenues all direct and indirect costs are subtracted. ***Operating income*** is also known as the earnings before interest and tax (EBIT). The operating income is the organisation's profit after all operating expenses, excluding financing costs and taxes, have been deducted from the revenues. ***Net profit before tax*** is the amount of profit left after all expenses, except taxes, have been deducted from the revenues. ***Net profit*** is the amount of profit left after all expenses, including financing costs and taxes have been deducted from the revenues. ***Free cash flow*** is the change in cash exceeding that which is needed to operate, pay creditors, and invest in assets over time. Free cash flow can also be calculated by taking the net profit and increase it with the depreciation, the change in working capital, and the capital expenditures. In this way, only the cash flows from the operating activities and the investing activities are taken into account.

3.2.2.1. Example for the calculation of the free cash flow

Table 4 shows an example of how the calculation of the free cash flow of an organisation can be made. The table displays the possible layout which organisations see when comparing the calculated free cash flow to their own data.

Table 4 - Example layout free cash flow calculation

Free cash flow of current year		
	Revenue	€
-	Cost of goods sold	€
	Gross profit	€
-	SG&A expenses	€
	EBITDA	€
-	Depreciation	€
	Operating income	€
-	Interest	€
	Net profit before tax	€
-	Tax	€
	Net profit	
	Adjustments for:	
+	Depreciation	€
+	Change in net working capital	€
+	Capital expenditures	€
	Free cash flow	€

3.2.3. Required information for strategic alternatives

An organisation has to predict the changes resulting from a strategic alternative. The strategic alternatives have each a different impact on the organisation and therefore on the value of the organisation. Determining how the variables change with each strategic alternative is the third step of the return phase.

A strategic alternative could have an impact on many variables leading to changes in the value of an organisation. However, it is time consuming trying to define all these variables influenced by strategic alternatives. Another difficulty is that each strategic alternative will have different variables which might change. Choosing to expand to a different market will have entirely different consequences than producing a new product. When an organisation wants to expand to a different market it might need new buildings, new production facilities, local marketing, a new staff, new distribution channels, etcetera. An organisation who wants to add a different product line might need to train their employees, spend money on research and development, and buy new equipment. This method has to be user friendly and comprehensible for the users. Therefore, the choice is made to focus on four main variables: sales volume, prices, production cost, and investment outlay. While a strategic alternative could influence many variables such as brand recognition it will often lead back to the same main variable, like an increase in sales volume. How far an organisation goes in determining the effect of a strategic alternative on these four variables, or even on other variables, falls beyond the scope of this research. However, the notion has to be given that the quality of the predictions about changes in variables will influence the outputs of the analysis; the output is as accurate as the input.

The choice is made to reflect the changes in the variables as percentages. However, this can also be easily done with amounts instead of percentages. In this situation a linear model is created, which means that a percentage is determined and stayed constant for the prediction period. For instance, a strategic alternative will result in an increase of 5% in sales volume for each year. The amount of sales will increase every year with the 5% until the terminal year. The method can be adjusted to make a non-linear model with inputs for each year until the terminal year. However, this will be time consuming for organisations and specific predictions of each year are required.

Another variable influencing the performance outcome of the strategic alternatives is for what time period the estimation is made. Usually the terminal year, thus the last year of the estimation, lies between the five and ten years. Changing the prediction period has large effects on the outcome; therefore the organisation has to make a well-considered choice. Another choice which has to be made is how many strategic alternatives are compared. This completely depends on the wishes of the organisation; it can choose to evaluate only one strategic alternative or multiple alternatives. Figure 14 shows the process for importing information for strategic alternatives; the information will be entered into a database. Information from the information strategic alternatives database is used for the expected return and associated risk calculations. The four variables influenced by the strategic alternatives will be described.

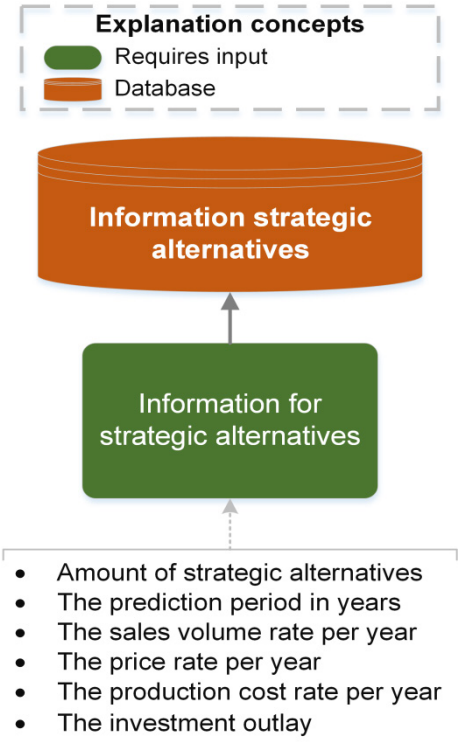

Figure 14 - Required information for strategic alternatives

The ***sales volume rate per year*** reflects how the strategic alternative influences the amount of sales for each year. The sales can be forecasted based on several items like the levels of production, market penetration, an increase in customers, and off-take agreements. Sales is one of the greatest drivers of revenues, without sales there will be no revenues to speak off. In this method the assumption has been made that the sales volume rate influences the revenues, the cost of goods sold, the SG&A expenses and depreciation. With more sales the production related expenses will increase as well as the sales expenses such as distribution costs.

The price rate is usually changed by the organisation to respond to changes in the market. However, when an organisation implements a strategy it might want to adjust its prices to compensate for the cash outflows needed for the strategy. Another change might be that the organisation is going to compete based on their prices in the hope that the sales will increase. In this case the prices will decrease leading to predicted higher sales. The assumption made in this method is that the change in price rate will have its effect on the revenues of the organisation.

The production cost rate often change because of an implemented strategy. A strategy often requires investments in materials, machines, buildings, etcetera which can be seen in the production costs. Another change might be that an organisation implements a strategy which requires a decrease the production costs to increase the profits. The assumption in this method is that the change in production cost rate will lead to changes in the cost of goods sold.

The investment outlay represents the costs related to implementing a strategic alternative. It is the initial cash outflow required for a strategic alternative to be executed. The investment outlay is used to determine whether the performance outcome of strategic alternatives is high enough to cover the initial cash outflows.

3.2.3.1. Example of the required information for the strategic alternatives

An example is given of the layout of the information required for the strategic alternatives in Table 5. From this table can be seen that information is necessary for the four variables mentioned above and for the prediction period. The organisation can choose for how many strategic alternatives it wants to submit information.

Table 5 - Example layout required information for strategic alternatives

Required information for the strategic alternatives			
	Strategic alternative 1	**Strategic alternative 2**	**Strategic alternative *n***
Length prediction period	Year	Year	Year
Sales volume rate	%	%	%
Price rate	%	%	%
Production cost rate	%	%	%
Investment outlay	€	€	€

3.2.4. Intermediate calculations for the return of strategic alternatives

There are several methods which can be used to determine the value or expected return of the strategic alternatives. However, before the outputs of these methods are known it is necessary to make some calculation. Making the intermediate calculations for the expected return is the fourth step of the return phase. This step will happen in the background and is usually not seen by the users of the method. The calculations will be made by using the information from the free cash flow database and the information strategic alternatives database. There are several intermediate calculations made which will be used in the methods for determining the return. These calculations will be imported into a database of calculation return to make sure that the information is accessible for the next step. Figure 15 displays the process of making the calculations for the return phase.

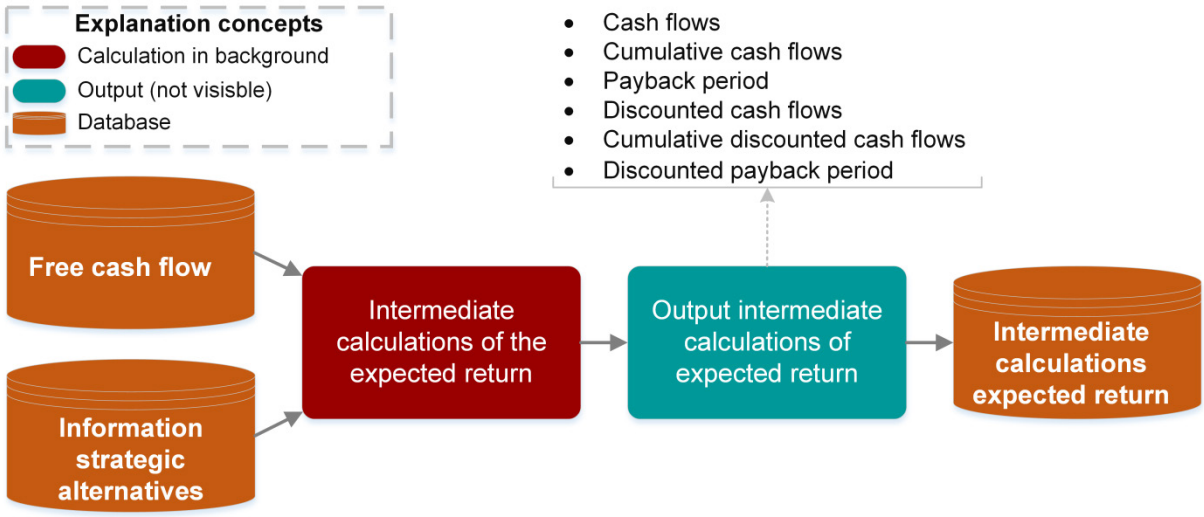

Figure 15 - Intermediate calculations for the return of strategic alternatives

Most of the methods use the future free cash flows in their calculations of the expected return. However, only the ARR does not use the cash flows in its calculation but the ***net profit***. Consequently, the expected net profit of each year has to be calculated to be able to calculate the ARR. All the other methods do use the cash flows in their calculations. Therefore, it is necessary to calculate the expected ***free cash flow*** of each year. However, knowing the free cash flows is not enough for every method. To be able to calculate the payback period is necessary to identify the ***cumulative cash flow*** of each year.

When the future free cash flows are known is becomes possible to discount them to their present value. For the DCF methods it is necessary to know the ***discounted free cash flow*** of each year. Just like with the normal payback period it is necessary to know the ***discounted cumulative cash flow*** to be able to determine the discounted payback period.

3.2.4.1. Example intermediate calculations of the expected return

In Table 6 an example is provided of the layout of the intermediate calculations for one of the strategic alternatives. These intermediate calculations are made to provide the information necessary for determining the expected return of each strategic alternative.

Table 6 - Example layout intermediate calculations for strategic alternative X

Intermediate calculations for strategic alternative X				
Year	**0**	**1**	**2**	***n***
Net profit	€	€	€	€
Free cash flow	€	€	€	€
Cumulative cash flow	€	€	€	€
Discounted free cash flow	€	€	€	€
Cumulative discounted cash flow	€	€	€	€

3.2.5. Output expected return of strategic alternatives

Six methods are identified for determining the value or expected return of the strategic alternatives: the net present value (NPV), the internal rate of return (IRR), the profitability index (PI), the discounted payback period, the accounting rate of return (ARR), and the payback period. By calculating the output of each of these methods the return of a strategic alternative is displayed in six different ways. An organisation has to determine for itself which method best reflects its definition of return. The output can be calculated with the information from the database intermediate calculations return. The outputs are not only determined and displayed to the user of the method, but the outputs of the strategic alternatives are also compared to show which alternative is most preferable. The outputs and the comparisons are stored in the database for output for strategic alternatives. The six different methods and their decision rules are explained below. Figure 16 shows the process of determining the output of the return analysis for strategic alternatives.

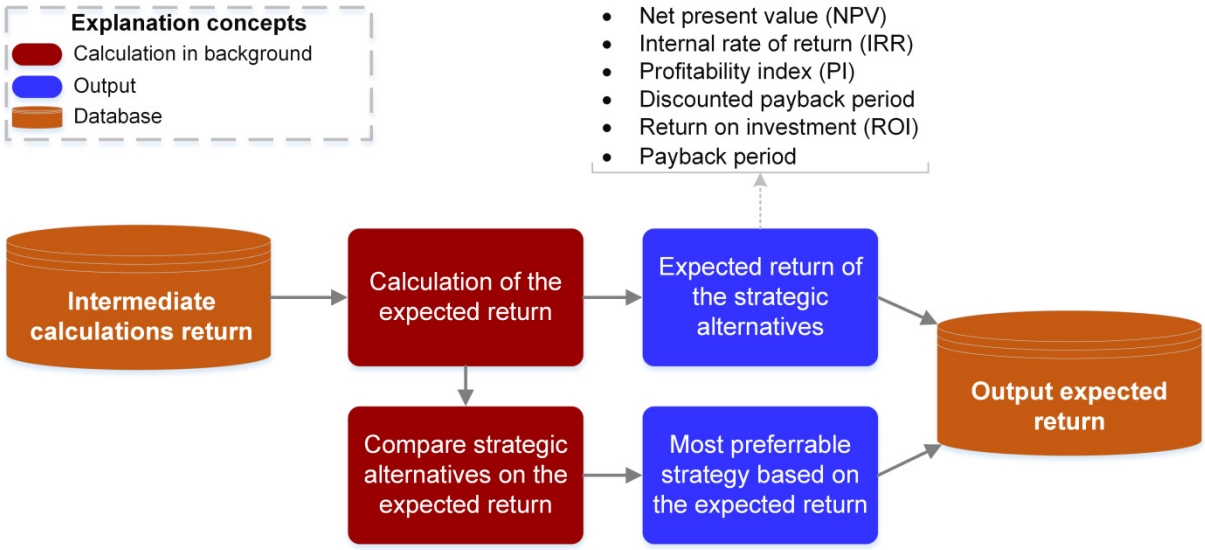

Figure 16 - The output of the return assessment and the comparison of strategic alternatives

Net present value (NPV) is the value of the organisation after a period of time in which the future net cash flows after tax are discounted with a discount rate to their present values, to take into account the time value of money and the risk. The NPV can be calculated by computing the sum of the discounted present cash flows and subtracting the initial investment outlay. The following equation shows how the NPV can be calculated in which the I_0 is the initial investment outlay, the CF_t is the cash flow for a particular time period, the CF_N is the

cash flow for the final period, the r is the discount rate, t is the period, and N is the total number of periods:

$$NPV = I_0 + \left[\frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \cdots + \frac{CF_t}{(1+r)^t} + \frac{CF_N}{(1+r)^N}\right]$$

This formula is used in the method to determine the NPV. The NPVs are compared by applying the decision rule for the NPV. The decision rule is that the strategic alternative with the highest NPV above zero is preferred. This strategy has the highest present value after the initial investment outlay has been subtracted.

Internal rate of return (IRR) is the compound rate of return that equates the present value of cash inflows received with the initial investment. If the IRR does not cover the desired rate of return or the cost of capital then the strategic alternative does not create (the desired) value for the organisation. The IRR is the discount rate for which the NPV will be equal to zero. The IRR can be calculated by searching the discount rate for which the NPV will turn to zero. Determining the IRR by hand is quite challenging and therefore a break-even analysis is usually used. The IRR can be calculated by applying the following formula in which the IRR is given be the r, and the I_0 is the initial investment outlay, the CF_t is the cash flow for a particular time period, t is the period, and N is the total number of periods:

$$NPV = I_0 + \left[\sum_{t=0}^{N} \frac{CF_t}{(1+r)^t}\right] = 0$$

In the method this formula is used to determine the IRR. The IRRs of the strategic alternatives are compared by applying the decision rule for IRR. The decision rule is that the strategic alternative with the highest IRR, larger than the required rate of return or cost of capital, is preferred. This strategy can cover the required rate of return or cost of capital with discounted cash flows.

Profitability index (PI) is the ratio of the sum of present cash flows to the initial investment outlay. The PI shows whether the strategic alternative creates value or destroys value for the organisation. If the sum of discounted cash flows is larger than the initial investment outlay then the strategic alternative creates value. The PI can be determined with the following equation in which I_0 is the initial investment outlay, the CF_t is the cash flow for a particular time period, the r is the discount rate, t is the period, and N is the total number of periods:

$$PI = \left[\sum_{t=0}^{N} \frac{CF_t}{(1+r)^t}\right] \Big/ I_0$$

In this method the equation is used to determine the PI. The PIs of strategic alternatives are compared with each other by using the decision rule of the PI. The decision rule is that the strategic alternative with the highest PI above one is preferred. This strategic alternative's discounted cash flows can cover the initial investment outlay.

Discounted payback period is the length of time it takes before the sum of the cumulative present cash flows become larger than the initial investment outlay. The discounted payback period determines how fast the initial expenses are covered by present cash flows. The

following formula can be used to calculate the discounted payback period in which t_{neg} the period is when the cumulative discounted cash flow is still negative and the t_{pos} is the period when the cumulative discounted cash flow is positive:

$$Discounted\ payback\ period = \frac{Cummulative\ discounted\ cash\ flow\ of\ t_{neg}}{Discounted\ cash\ flow\ of\ t_{pos}} + t_{neg}$$

This formula is used in the method to calculate the discounted payback period. The discounted payback period of the strategic alternatives are compared by using the decision rule. The decision rule is that the strategic alternative with the shortest discounted payback period is preferred. This strategic alternative has earned back the initial investment outlay the fastest with present cash flows.

Accounting rate of return (ARR) is the sum of the net profits after tax divided by the average investment. The ARR does not take into account the time value of money or risk, and will therefore most likely lead to a larger amount of return for the strategic alternative. The ARR can be calculated with the following equation in which the *NPt* is the net profit for a particular period, I_0 is the initial or average investment, t is the period, and N is the total number of periods:

$$ARR = \left(\sum_{t=0}^{N} NP_t\right) \Big/ I_0$$

This formula is used to determine the ARR for each strategic alternative. The ARRs are compared based on the decision rule of the ARR. The decision rule is that the strategic alternative with the largest ARR is preferred. This strategy has the highest amount of return compared to the initial investment outlay.

Payback period is the length of time it takes before the cumulative cash flows become larger than the initial investment outlay. The payback period shows how fast the initial expenses can be covered by the cash flows. The payback period can be determined with the following equation in which t_{neg} the period is when the cumulative cash flow is still negative and the t_{pos} is the period when the cumulative cash flow is positive:

$$Payback\ period = \frac{Cummulative\ cash\ flow\ of\ t_{neg}}{Cash\ flow\ of\ t_{pos}} + t_{neg}$$

The equation for the payback period is used in this method. The payback periods of the strategic alternatives are compared by using the decision rule. The decision rule is that the strategic alternative with the shortest payback period is preferred. This strategy has earned back the initial investment outlay the fastest with cash flows.

3.2.5.1. Example return output

In Table 7 an example is provided of how the outputs from the different methods can be displayed. For each strategy the outputs are given and a comparison can be made with the use of these outputs. There are several ways of displaying the most preferable strategic alternatives. A colour scheme can be used in which the most preferable turns green and the least preferable turns red, or it can be displayed in a table showing which strategic alternative is preferred with each output.

Table 7 - Example layout expected return output of the strategic alternatives

Expected return output of the strategic alternatives			
	Strategic alternative 1	**Strategic alternative 2**	**Strategic alternative *n***
Net present value (NPV)	€	€	€
Internal rate of return (IRR)	%	%	%
Profitability index (PI)			
Discounted payback period	Year	Year	Year
Accounting rate of return (ARR)	%	%	%
Payback period	Year	Year	Year

3.3. The steps for estimating the associated risk

Determining the associated risk of strategic alternatives is done in the method with the use of two methods: the sensitivity analysis and the Monte Carlo simulation. These two methods and the steps within the methods are described in the paragraph 3.3.1 and paragraph 3.3.2.

3.3.1. The sensitivity analysis

Sensitivity analysis is used in this method to determine the sensitivity of the expected return of strategic alternatives to a change in the pre-specified variables. These variables are the sales volume rate, the price rate, and the production cost rate. The sensitivity analysis is useful because it helps to create understanding which variables drive and impact the net outcomes of a strategic alternative the most. The strategic alternative with the net outcome that is most influenced by the three variables is riskier because of a higher chance on a negative outcome. This method has three steps which will be explained below into more detail.

3.3.1.1. Required information for sensitivity analysis

Sensitivity analysis requires information before the analysis can be conducted. Importing the necessary information is the first step of the sensitivity analysis. Sensitivity analysis determines the sensitivity of the net outcome to several variables. There is no pre-determined net outcome which has to be used in the sensitivity analysis. Usually, the NPV is used as the net outcome because it represents the value in an actual amount. However, organisations have to choose for themselves which net outcome they want to use for the sensitivity analysis. The NPV, the IRR, the PI, the discounted payback period, the ARR, and the payback period can be chosen as the net outcome. It is recommended to select the NPV as the net outcome since it best represents the changes in value and is easily interpreted.

In this situation sensitivity analysis is combined with scenario analysis. A range can be set showing the worst-case (minimum) scenario and a best-case (maximum) scenario for each of the three variables. The net outcome can be calculated by changing a variable to a range within the worst-case and best-case boundaries while all other variables are kept constant. The boundaries are usually set while using common sense that a variable is not going to decrease more than the worst-case scenario or increase more than the best-case scenario. The boundaries are set, just like the variables, as percentages. To make it somewhat easier for organisations they can choose to automatically set the boundaries or to import the information themselves. Organisations can set a range with how much the predicted variable is going to change. When they choose the automatic approach a range between of 10% is selected for the sales volume rate, the price rate and the production cost rate. This range is set around the percentage that is predicted for each variable of each strategic alternative. For instance, when

it is predicted that the sales volume is going to grow with 5% and a range of 10% is set for the sensitivity analysis this will mean that the worst-case scenario is that the sales volume will decrease with 5% and the best-case scenario is that the sales volume increases with 15%. The range is the deviation on the prediction. If they choose to non-automatically import the information themselves they can set the range for each variable at percentages of their own choice. Accordingly, only when organisations choose to set the boundaries non-automatic it is necessary to set a range for the sensitivity analysis.

The process of importing information for the sensitivity analysis can be seen in Figure 17. The information that is entered will be saved in a database for the information sensitivity analysis. This information can be used for the calculations, which is the next step in the sensitivity analysis.

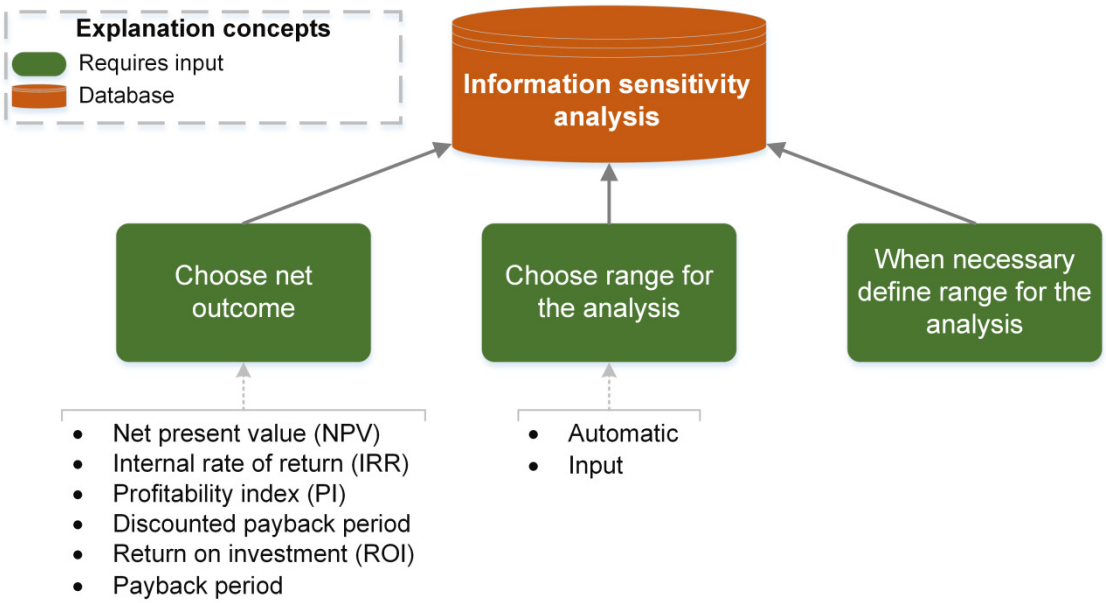

Figure 17 - Required information for sensitivity analysis

An example is provided of the first step of the sensitivity analysis, which is about importing information, in Table 8. This table shows which choices can be made, the bottom-part of the table will only be displayed when the organisation choose to define the range itself.

Table 8 - Example layout required information sensitivity analysis

Required information sensitivity analysis	
Choose net outcome	Net present value (NPV) Internal rate of return (IRR) Profitability index (PI) Discounted payback period Accounting rate of return (ARR) Payback period
Choose the range of the analysis	Automatic Non-automatic (by hand)

Strategic alternative X	Sales volume rate	Price rate	Production cost rate
Set range for the analysis	%	%	%

3.3.1.2. Intermediate calculations sensitivity analysis

The information from the previous step can be used in combination with the free cash flow information from the return phase to make the intermediate calculations necessary for the sensitivity analysis. This second step of the sensitivity analysis will happen in the background and will not be seen by the user. The variable will change with steps within the boundaries of the analysis to make sure that the information can be used to develop a sensitivity graph. The net outcome will be calculated with each change in variable while keeping the other variables constant. The information resulting from the calculations is stored in a database so that it can be used to determine the outputs of the sensitivity analysis. The process of making the calculations for the sensitivity analysis can be seen in Figure 18.

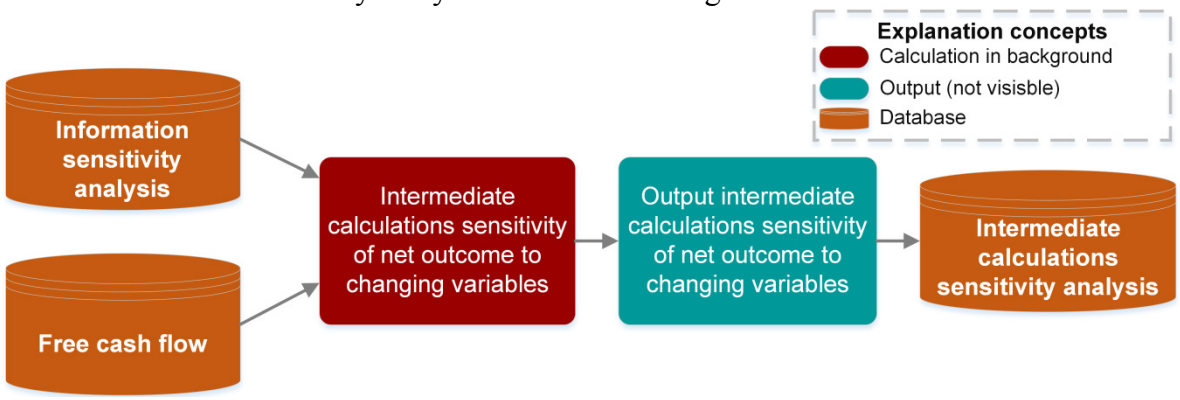

Figure 18 - Intermediate calculations for the sensitivity analysis

An example is given in Table 9 to show the layout of one of the calculations for determining the effect of change in one variable on the expected return of a strategic alternative.

Table 9 - Example layout intermediate calculations sensitivity analysis

Strategic alternative X	
Change in variable	Resulting expected return
-10%	
-9%	
-8%	
-7%	
-6%	
-5%	
-4%	
-3%	
-2%	
-1%	
0%	
1%	
2%	
3%	
4%	
5%	
6%	
7%	
8%	
9%	
10%	

3.3.1.3. Output sensitivity analysis

The third and last step of the sensitivity analysis is displaying the output of the analysis. The output is displayed to show how a change in a variable will influence the expected return of a strategic alternative. For computing the outcomes of the sensitivity analysis the information from the intermediate calculations of the previous step is needed. The output of the sensitivity analysis can be displayed by the use of tables or sensitivity graphs. The information about the output can be stored in a database for the output.

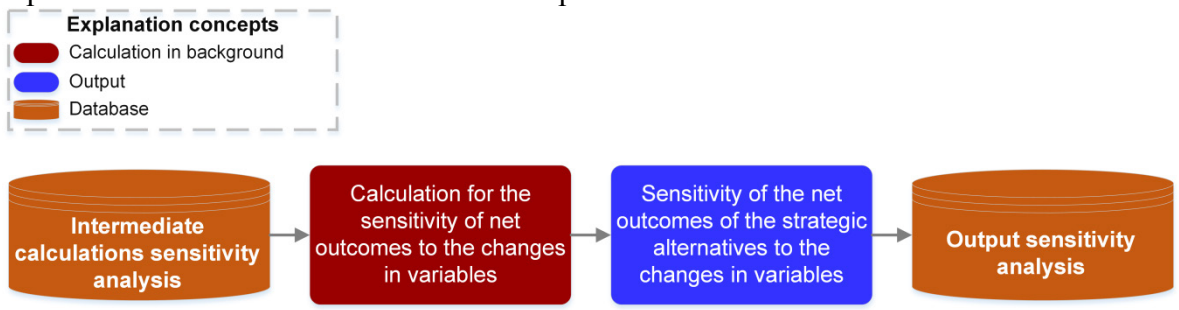

Figure 19 - The output of the sensitivity analysis

For each variable is displayed what the impact of a change in variable is on the expected return of each strategic alternative. The table displays the worst-case return when the variable changes to the worst-case scenario, it shows the best-case return when the variable changes to the best-case scenario, and it shows the nominal outcome when the variable stays exactly the same. This data shows us which strategy has the worst return in the worst-case scenario and which strategy has the best return in the best-case scenario. It shows the sensitivity of the expected return of a strategic alternative to the changing variable. The strategic alternative that shows the lowest expected return during the worst-case scenario is the strategic alternative with the highest risk. Whether the organisation wants to endure that kind of risk is up to what kind of risk appetite the organisation has. The organisation has to determine for itself whether it wants to have this kind of risk. It might want to look at the best-case scenario of that strategic alternative as well. Table 10 gives an example of how the output of a sensitivity analysis might be displayed. The effects of changes in the variables on the expected return are shown.

Table 10 - Example layout output of sensitivity analysis

Output of sensitivity analysis			
	Change in sales volume rate		
	Worst-case	Nominal	Best-case
Strategic alternative 1			
Strategic alternative 2			
Strategic alternative *n*			
	Change in price rate		
	Worst-case	Nominal	Best-case
Strategic alternative 1			
Strategic alternative 2			
Strategic alternative *n*			
	Change in production cost rate		
	Worst-case	Nominal	Best-case
Strategic alternative 1			
Strategic alternative 2			
Strategic alternative *n*			

In addition to the table, which might seem cluttered and confusing, a sensitivity graph can be made. Figure 20 shows an example of a sensitivity graph for a change in sales volume and the resulting net outcomes of three strategic alternatives.

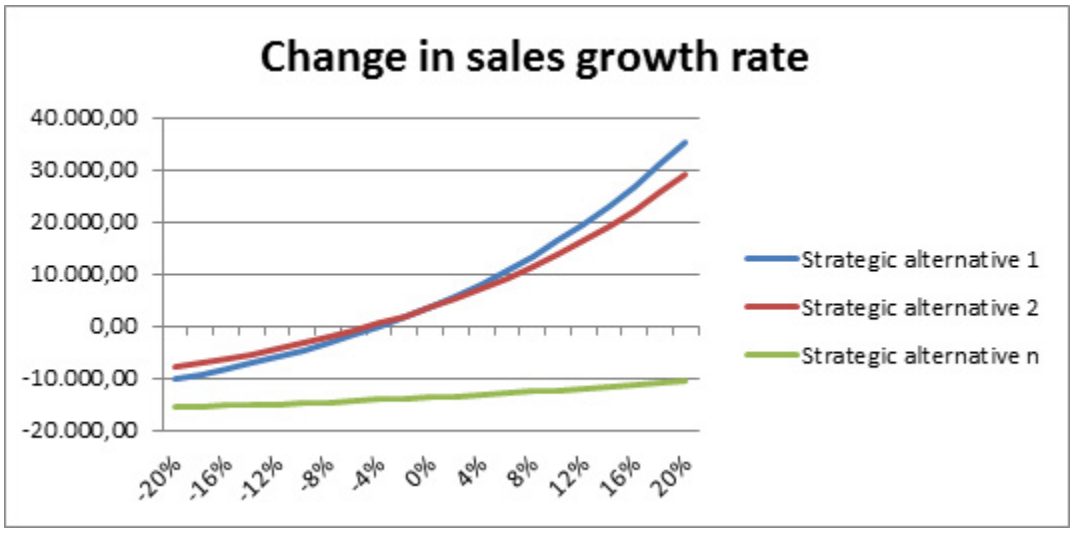

Figure 20 - Sensitivity graph for a change in sales volume rate

3.3.2. The Monte Carlo simulation

In the Monte Carlo simulation thousands of scenarios are simulated in which the expected return of a strategic alternative is adjusted by random changes in variables. Each scenario will lead to a different expected return since the variables are randomly chosen. Monte Carlo simulation can be used to determine the most likely return for a strategic alternative and to determine the chance on a negative return. The statistical distribution of the performance outcome can be plotted and the average can be calculated. The variables changing are the three variables determined in the return phase, thus the sales volume rate, the price rate, and the production cost rate. The Monte Carlo simulation does have a pre-specified return measure which represents the expected return of the strategic alternative. The NPV is most frequently used in Monte Carlo simulation. Therefore the NPV will be used in this method for the Monte Carlo simulation.

3.3.2.1. Required information for Monte Carlo simulation

The first step in the Monte Carlo simulation is determining the boundaries of the simulation. In a normal Monte Carlo simulation each variable has a probability distribution with a known mean and variance. Since this method is about variables as percentages influencing multiple aspects of the free cash flow calculation it is difficult to set a mean and variance. Therefore, the Monte Carlo simulation is combined with scenario analysis. The boundaries for a variable are set with the use of a range determining a worst-case and best-case scenario. Within the range of those two scenarios thousands of scenarios can be created. Just like with the sensitivity analysis organisations can choose whether they want to determine the range for the boundaries automatically or import a self-determined range. If the organisation chooses to automatically set the range, a range is set of 10% for the sales volume rate, the price rate, and the production cost rate. If the organisation chooses non-automatic it has to determine the range itself.

In Figure 21 the process of importing the information for the Monte Carlo simulation is shown. Only when the organisation chooses to submit the information on the range itself then

it is necessary to define the range for analysis. The information for the Monte Carlo simulation is entered into a database and will be used for the calculations.

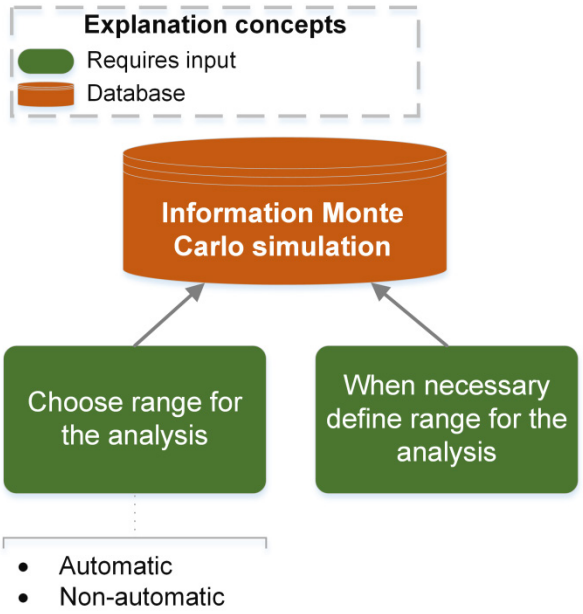

Figure 21 - Required information for the Monte Carlo simulation

Table 11 gives an example of how an organisation can import the necessary information. An organisation can choose to automatically define the boundaries; in this case it does not have to import any information. The bottom-part of the table is only visible when the organisation wants to determine the boundaries itself.

Table 11 - Example layout required information Monte Carlo simulation

Required information Monte Carlo simulation			
Choose the range of the analysis	Automatic Non-automatic (by hand)		
Strategic alternative X	Sales volume rate	Price rate	Production cost rate
Set range for the simulation	%	%	%

3.3.2.2. Intermediate calculations Monte Carlo simulation

Simulating the thousands of scenarios is the second step of the Monte Carlo simulation. In this simulation 10.000 scenarios are made in which the variables are randomly chosen within the set ranges. For each scenario the corresponding expected return, or NPV, is calculated. Consequently, the Monte Carlo calculations need information from the free cash flow calculation and information about the Monte Carlo simulation. The resulting data from the thousands of scenarios for each strategic alternative will be imported into a database. This data can be used to compute the outputs from the Monte Carlo simulation. Figure 22 shows the process of the calculations for the Monte Carlo simulation.

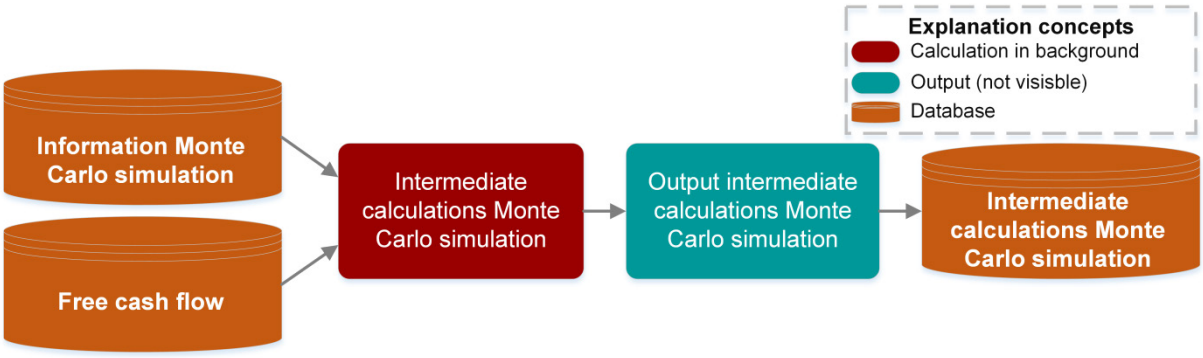

Figure 22 - Intermediate calculations for the Monte Carlo simulation

3.3.2.3. Output Monte Carlo simulation

The third and last step of the Monte Carlo simulation is displaying the output of the simulation. With the use of the information from the calculations for the Monte Carlo simulation several outputs can be calculated. These outputs can be displayed in a histogram or in tables. The output of the Monte Carlo simulation is entered into a database. The process of displaying the outputs of the Monte Carlo simulation can be seen in Figure 23.

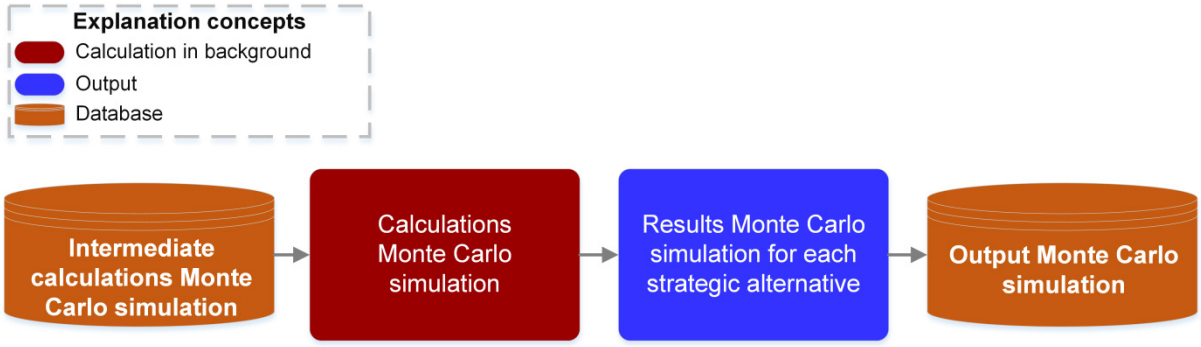

Figure 23 - The output of the Monte Carlo simulation

Based on the data of the 10.000 scenarios the worst-case, the nominal-case and the best-case outcomes can be determined. More importantly, there can be determined what the chance is on a negative outcome with the strategic alternative. This displays the riskiness of the strategic alternative. Next to this, there can be determined what the most likely outcome will be. A 95 percent confidence interval is computed to determine with 95 percent confidence that the net outcome will be in a range of two outcomes. The 95 percent confidence interval for the mean of the net outcome can be computed with the following formula, in which *std.dev.* means the standard deviation of the average net outcome:

$$Mean\ (average) net\ outcome \pm \frac{1.96 * net\ outcome\ std.dev.}{\sqrt{number\ of\ scenarios}}$$

These outputs of the Monte Carlo simulation can be displayed in a table. Table 12 is an example of how the output of the Monte Carlo simulation can be displayed. With this information an organisation can determine which strategic alternative has the most associated risk and which strategic alternative has the least associated risk.

Table 12 - Example layout output Monte Carlo simulation

Output Monte Carlo simulation			
	Strategic alternative 1	**Strategic alternative 2**	**Strategic alternative *n***
Worst-case (minimum) outcome	€	€	€
Average (mean) outcome	€	€	€
Best-case (maximum) outcome	€	€	€
Chance of a negative outcome	%	%	%
95% chance that the outcome will be between the following:	€ €	€ €	€ €

3.4. Conclusion: the assessment of strategic alternatives

The expected return phase of the method provides the user with a clear comparison of the strategic alternatives. The most preferable strategic alternative is mentioned for each measure of expected return. The comparison is made based on universal decision rules for each measure of expected return. The risk phase does not provide such a structured comparison between strategic alternatives based on their associated risk. The reason behind this is that the organisation has to determine for itself how much risk is acceptable. A risk appetite should be determined to be able to assess whether a strategic alternative fits within the risk appetite.

By comparing the outputs of the expected return estimation, the sensitivity analysis, and the Monte Carlo simulation with each other a trade-off between expected return and associated risk can be made. However, how an organisation interprets the results is entirely dependent on which measure of expected return they prefer and what its risk appetite is. This method mainly supports organisations in making their strategic decision by providing information about the expected return and associated risk of each strategic alternative. The method does not provide a fixed answer; the outputs can be interpreted by every organisation differently. The purpose of the method is to make it possible for organisations to estimate the expected return and associated risk to give the organisation an idea of which strategic alternative might be the right one.

The sub-research question, "*What are the steps in the method for assessing strategic alternatives based on their expected return and associated risk?*", is answered with the use of this design and development chapter.

4. Demonstration of the method

For this part of the research a case study is used to demonstrate the functionality and usability of the developed method for assessing strategic alternatives based on the expected return and associated risk. According to Saunders et al. (2009) a case study provides the opportunity to observe and analyse the method with the use of an actual case. The method can be examined in a real life context to test the functionalities and limitations. In this research the case study is used as an in-depth examination of the usability of the proposed method. This demonstration is conducted to identify problems and to improve and adjust the method. The demonstration is performed with use of the fictitious ArchiSurance organisation as the case study, which core activity is selling insurances. According to Jonkers, Band and Quartel (2012) the ArchiSurance organisation is the result of a recent merger between three independent insurance organisations:

- The Home & Away organisation which specialises in homeowners' insurance and travel insurance.
- The PRO-FIT organisation which specialises in auto insurances.
- The Legally Yours organisation which specialises in legal expenses insurances.

The cause for the merger is that the main investors of the three organisations began to notice that lower-cost competitors were entering the markets, that there were new opportunities in high-growth regions, and that each organisation needed significant IT investments to remain competitive (Jonkers et al., 2012). Only a larger and combined organisation could survive in this dynamic and fast changing environment.

This research is a continuation on the research from Aldea et al.'s (2013) into a strategy model-based approach for aligning strategic thinking with strategy implementation. In the research of Aldea et al. (2013) the ArchiSurance case study is also used to demonstrate the developed approach. The demonstration of Aldea et al. (2013) focusses on one of the three organisations that later on formed the ArchiSurance organisation, namely the PRO-FIT organisation. The findings of the demonstration of Aldea et al. (2013) are used to demonstrate the method for assessing strategic alternatives based on expected return and associated risk.

4.1. Background of PRO-FIT

To get an understanding of the context of the PRO-FIT organisation the background of the organisation will be described. PRO-FIT is specialised in selling car insurances. The organisation is located in a country with approximately 17 million inhabitants. PRO-FIT is privately held by interlocking groups of institutional and individual investors. The organisation had a loyal customer base and a strong reputation for integrity, value, service, and financial stability.

PRO-FIT operates in a fast changing and dynamic environment in which low-cost competitors are entering the market, opportunities are identified in high-growth regions, and there is a need for significant IT investments to remain competitive. There are some large competitors in the current market which makes it challenging for PRO-FIT to successfully compete. The organisation focuses mainly on the selling of car insurances. These insurances are sold directly to individuals and small businesses through the use of the web, e-mail, telephone, and postal mail channels. The insurance policies are sold and sent to the customer through the use of e-mail or regular post. The awarded claims are paid through the use of a banking system into the account of the customer. In addition, PRO-FIT offers several services complementing

the payment of damages, such as the transport of damaged cars to approved car repair shops. The PRO-FIT organisation has a fairly large customer base which is divided as follows:

- Households: 4% of the 7 million households.
- Single employee-businesses: 3% of the 1.1 million single employee-businesses.
- Businesses with less than 50 employees: 1.6% of the 530,000 businesses.
- Businesses with less than 500 employees: less than 0.1% of the 17,200 businesses.

There are 440 employees working for the PRO-FIT organisation. These employees have tasks like handling the sales and handling the claims. There are claim experts, financial experts, car damage experts, sales experts, and others working for the organisation. The organisation has the following business units at the headquarters: front office, back office, shared service centre, and other departments. The other departments are located at small locations where contracted employees work from or where employees temporary work from. The PRO-FIT organisation has the following mission statement: "*We offer our clients financial peace of mind by delivering high quality, clear and well-defined insurance products*".

The core activities of PRO-FIT are attracting and registering new customers, updating and maintaining existing customers, closing accounts of the customers that leave the organisation, and handling claims. The supporting activities of PRO-FIT can be divided into the following categories: HRM, accounting, public relations, and security and governance. To successfully compete with their competitors, PRO-FIT will need significant investments in its IT. IT is putting a strain on the other departments since it limits the speed with which changes can be implemented. The increase in competitors, the new opportunities in other regions, and the needed IT investments leads the management to a search for solutions to the current situation.

4.2. The strategic alternatives of PRO-FIT

Following the strategy-based approach of Aldea et al. (2013) for aligning strategic thinking with strategy implementation there are four strategic alternatives identified which might be suitable for the PRO-FIT organisation. The four strategic alternatives are as follows:

- The "*expand to new market"* strategic alternative leads to intense brand promotion with aggressive marketing and "first time customer" discount campaigns in new high growth areas.
- The "*focus on current customer base*" strategic alternative results in a focus on maintaining the customer satisfaction by releasing a new "no-claim" program for existing customers.
- The "*merge and invest*" strategic alternative focuses on creating a merger with indirect competitors in order to grow with the organisation and to expand to a new market, while making significant IT investment and managing costs.
- The "*improve cost management*" strategic alternative will lead to no significant changes; the cost management of the organisation will be improved.

In the strategic choices section of the strategy model-based approach the four strategic alternatives are compared with the use of the Quantitative Strategic Planning Matrix (QSPM). Within the QSPM the Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis is used which identifies the factors form the internal and external environment influencing the performance. In the QSPM scores are assigned to the internal and external factors, which make it possible to choose between the strategic alternatives. Consequently, this tool will determine which strategic alternative is more attractive for the PRO-FIT organisation, based

on subjectively assigned weights and ratings for the factors that helped creating the strategies. Based on the QSPM analysis, the following ranking can be made of the strategic alternatives:

1. Merge and Invest strategy (5.53 score)
2. Expand to new market strategy (4.46 score)
3. Improve cost management strategy (4.15 score)
4. Focus on current customer base strategy (3.95 score)

According to the scores of the QSPM analysis the "merge and invest" strategic alternative is the most suitable option for the PRO-FIT organisation. Consequently, this strategy will be chosen for the PRO-FIT organisation to implement. However, this is where the return and risk method can be used to assess the strategic alternatives based on their expected return and associated risk. This assessment will provide the organisation with an extra confirmation that the chosen strategic alternative is the right one, or not. The last strategic alternative will be excluded since it is the least suitable for the organisation based on the QSPM analysis. In the next paragraph the three resulting strategic alternatives will be compared based on the expected return and associated risk.

4.3. Return and risk assessment of the PRO-FIT strategic alternatives

The three identified strategic alternatives for the PRO-FIT organisation can be compared based on their expected return and associated risk, as an addition to the QSPM analysis. First, the expected return of each strategic alternative will be estimated to make an initial assessment of the strategic alternatives. Second, the associated risk will be determined to be able to assess the strategic alternatives based on both the expected return and associated risk.

4.3.1. Estimating the expected return of strategic alternatives PRO-FIT

There are five steps to estimate the expected return of strategic alternatives. Each of these steps will be described and applied to the PRO-FIT organisation.

4.3.1.1. Required accounting information PRO-FIT

The first step is to import the accounting information for the current year of the PRO-FIT organisation. PRO-FIT is, just like the ArchiSurance organisation, a fictitious organisation. Therefore, there is no accounting information available for the PRO-FIT organisation. To try to make the case study as realistic as possible public financial statements from an insurance organisation are used to gather the necessary information for the assessment. This insurance organisation provides multiple insurances, thus not only auto insurances like PRO-FIT. Nevertheless, using the information from these financial statements will result in the best possible analysis for the PRO-FIT organisation. From Table 13 can be seen how the accounting information is imported. The numbers from the financial statements are in thousands of euros, therefore the numbers from the required accounting information are also in thousands of euros. The discount rate is automatically chosen and is set at 15%. The accounting information will provide the basis for the assessment; with this information the free cash flow calculation can be made in the next step.

Table 13 - Required accounting information PRO-FIT

Required accounting information for the base year of PRO-FIT		
Information needed for calculating net profit (from income statement)		
Revenue	€	27,309.00
Cost of goods sold	€	-23,026.00
SG&A expenses	€	-3,042.00
Depreciation	€	-77.00
Interest	€	-467.00
Tax	€	269.00
Information needed for calculating free cash flow (from cash flow statement)		
Change in net working capital	€	-319.00
Capital expenditures	€	-2,882.00
Additional information needed		
Discount rate	Automatic	15%

4.3.1.2. Free cash flow calculation for PRO-FIT

Based on the input of accounting information in the previous step the free cash flow of PRO-FIT can be calculated. The free cash flow provides a check for the organisation to see whether the outcomes correspond to the actual situation of the organisation. With the use of the financial statements is determined that the free cash flow calculated in the method corresponds with what is mentioned in the financial statements. Therefore, it is an actual representation of the base year of PRO-FIT. The free cash flow of PRO-FIT, and how it is calculated, can be seen in Table 14. The information from the free cash flow calculation will be used in the calculations for the expected return and associated risk. Interesting is that the net profit for PRO-FIT is positive while the free cash flow is negative. This difference is caused by the IT investments needed which leads to a large amount in capital expenditures.

Table 14 - Free cash flow for PRO-FIT

Free cash flow of current year PRO-FIT		
Revenue	€	27,309.00
Cost of goods sold	€	-23,026.00
Gross profit	**€**	**4,283.00**
SG&A expenses	€	-3,042.00
EBITDA	**€**	**1,241.00**
Depreciation	€	-77.00
Operating income	**€**	**1,164.00**
Interest	€	-467.00
Net profit before tax	**€**	**697.00**
Tax	€	269.00
Net profit	**€**	**966.00**
Adjustments for:		
Depreciation	€	77.00
Change in net working capital	€	-319.00
Capital expenditures	€	-2,882.00
Free cash flow	**€**	**-2,158.00**

4.3.1.3. Required information for strategic alternatives PRO-FIT

Before the expected return can be estimated it is crucial to know what kind of changes a strategic alternative could make to the performance of the organisation, and in this case to PRO-FIT. The first choice which has to be made is the length of the prediction period, thus the period for which the expected return is calculated. The choice is made to set the terminal year at year 7 for each strategic alternative of PRO-FIT. This means that the expected return of a strategic alternative will be predicted for 7 years after the initial investment outlay. After a 7 years period the expected return of the strategic alternatives is calculated and compared. For each strategic alternative there are some assumptions which have to be made about the four variables defined in the method: the sales volume, the prices, the production costs, and the investment outlay. The assumptions are explained for each strategic alternative.

The "*merge and invest*" strategic alternative focuses on creating a merger with indirect competitors in order to grow with the organisation and to expand to a new market, while making significant IT investment and managing costs. Based on this information some assumptions are made about the four variables defined in the method.

> The sales volume rate is going to increase with 12% for this strategic alternative. A new market is going to be explored which will attract new customers, leading to a significant increase in the amount of sales. The prices are going to increase because the organisation has to manage it costs. Managing the costs can be done by increasing the prices. By increasing the prices the organisation compensates for making a high amount of costs. In many cases this will lead to a decrease in sales but because of the joint efforts and the large market share the amount of sales will not differ much. The price rate will increase with 4.5% compared to the base year. There will be significant IT investments and other costs as a result of the merger. Therefore, there will be a higher cost on each product being made or delivered. The production cost rate will increase with 3%. The significant IT investments will lead to a large amount necessary to be invested. There are other large amounts of costs associated with a merger such as new buildings, marketing, etcetera. An estimation has been made and the initial investment outlay for the "merge and invest" strategic alternative will be €3,500,000.

The "*improve cost management*" strategic alternative will lead to no significant changes for PRO-FIT; there is only the focus on improving the cost management of the organisation. Based on the information about the strategic alternative assumptions are made about the four variables influencing the performance of the organisation.

> The organisation is not going to have any changes in the sales or prices since it is only focusing on the cost management and does not change anything else. Therefore, both the sales volume rate and the price rate will be kept at 0%, which means that there will be no changes compared to the base year. The efforts of the organisation will lead to a decrease in the production costs of PRO-FIT. There will be a decrease of 3% in the production cost rate. Accordingly, the adjustments needed for improving the cost management will lead to a minor investment necessary. The initial investment outlay for improving the cost management is estimated at €500,000.

The "*expand to new market"* strategic alternative leads to intense brand promotion with aggressive marketing and "first time customer" discount campaigns in new high growth areas. Based on this information the assumptions are made about the four variables changes by the strategic alternative.

PRO-FIT is going to explore a new market with this strategic alternative; this new market is a high growth area. Consequently, it is expected that the strategic alternative will lead to a significant increase in sales since there are new customers who can be targeted. The sales volume rate is set at an increase of 8%. However, the new customers will get a discount because of the "first time customer" discount campaign. This discount applies for all new customers and it will lead to a decrease in the price rate. Expected is a decrease in price rate of 0.5%. There will be no consequences to the production cost of the organisation. The production cost rate will be 0%, meaning that there will be no changes to the production costs. PRO-FIT will need to make significant investments since it is going to expand to a new market which will require investments in fixes assets. There is a need for aggressive marketing and the initial investment outlay is set at €2,000,000.

These assumptions for each strategic alternative can be inserted into the method. Table 15 shows all the assumptions made for the strategic alternatives of PRO-FIT.

Table 15 - Required information strategic alternatives PRO-FIT

Required information for the strategic alternatives			
	Merge and invest	**Improve cost management**	**Expand to new market**
Length prediction period	7	7	7
Sales volume rate	12.00%	0.00%	8.00%
Price rate	4.50%	0.00%	-0.50%
Production cost rate	3.00%	-3.00%	0.00%
Investment outlay	€ 3,500.00	€ 500.00	€ 2,000.00

4.3.1.4. Intermediate calculations expected return of strategic alternatives

With the use of the free cash flow calculation and the information about the strategic alternatives the intermediate calculations can be made for the expected return of each strategic alternative of PRO-FIT. These calculations are usually not visible for the user of the method because it will happen in the background. An example is provided of the calculations for the "merge and invest" strategic alternative in Table 16. In this table the net profit, the free cash flows, the cumulative cash flows, the discounted free cash flows, and the cumulative discounted cash flows are calculated for each year until the terminal year. This information can be used to calculate the expected return of each strategic alternative.

Table 16 - Intermediate calculations "merge and invest" strategic alternative

Intermediate calculations for "merge and invest" strategic alternative						
Year	**0**	**1**	**2**	**3**	**…**	**7**
Net profit		€1,995	€3,308	€4,968	-	€16,896
Free cash flows		€-1,129	€184	€1,844	-	€13,772
Cumulative cash flows	€-4,000	€-4,629	€-4,446	€-2,601	-	€31,406
Discounted free cash flows		€-982	€139	€1,213	-	€5,177
Cumulative discounted cash flows	€-4,000	€-4,482	€-4,343	€-3130	-	€11,767

4.3.1.5. Output expected return of strategic alternatives PRO-FIT

With the use of the calculations from the previous step the expected return can be calculated for each strategic alternative of PRO-FIT. Table 17 displays the outputs for each strategic alternative about the NPV, the IRR, the PI, the discounted payback period, the ARR, and the payback period.

Table 17 - Output expected return strategic alternatives PRO-FIT

Output expected return strategic alternatives PRO-FIT			
	Merge and invest	**Improve cost management**	**Expand to new market**
Net present value (NPV)	€ 11.767,15	€ 3.555,24	€ -12.693,80
Internal rate of return (IRR)	47,61%	47,04%	-
Profitability index (PI)	4,36	8,11	-5,35
Discounted payback period	4,27	4,41	-
Accounting rate of return (ARR)	1622,12%	6403,82%	162,23%
Payback period	3,66	3,89	-

For this table a colour scheme is used to show which strategic alternative is most preferred based on the decision rules mentioned in the previous chapter. The table shows that the "expand to new market" strategic alternative is not feasible in terms of the expected return. The initial investment is not earned back within the 7 years forecast both for the discounted payback period and the normal payback period. The NPV of the strategic alternative is negative and much lower than the NPVs of the other strategic alternatives; the same applies for the PI. The IRR cannot be calculated since the present value earned is not higher than the initial investment outlay.

Therefore, in terms of the expected return the "merge and invest" and the "improve cost management" are the acceptable strategic alternatives. The "merge and invest" strategic alternative is overall the most preferable since it has the highest NPV and IRR, and it has the shortest discounted payback period and normal payback period. This indicates that the "merge and invest" strategic alternative will yield the highest expected return for PRO-FIT. However, when the expected return is calculated in terms of return on the initial investment outlay, the "improve cost management" strategic alternative is preferred. This strategic alternatives requires a much smaller investment outlay which results in a higher return on the investment than for the "merge and invest" strategic alternative. This strategic alternative has the highest PI and the highest ARR. Therefore, the "improve cost management" strategic alternative will result in the highest expected return on investment outlay for PRO-FIT.

Which strategic alternative is most preferred based on the expected return can also be displayed with the use of a table. Table 18 shows which strategic alternative is preferred based on each method for determining the expected return.

Table 18 - Most preferable strategic alternative for PRO-FIT

Which strategic alternative is most preferable?	
Based on:	
Net present value (NPV)	Merge and invest
Internal rate of return (IRR)	Merge and invest
Profitability index (PI)	Improve cost management
Discounted payback period	Merge and invest
Accounting rate of return (ARR)	Improve cost management
Payback period	Merge and invest

With this assessment of the strategic alternatives based on the expected return, PRO-FIT can make a choice which strategic alternative might be the right one. This research will recommend PRO-FIT to choose the "merge and invest" strategic alternatives since it has the highest NPV and IRR which best reflect the actual value created. Naturally the organisation can interpret the information in its own way and choose the assessment method to its own preferences. The next paragraph explores the associated risk of each strategic alternative.

4.3.2. Estimating the associated risk of strategic alternatives PRO-FIT

The associated risk of the strategic alternatives of PRO-FIT can be determined by using two risk assessment approaches: the sensitivity analysis and the Monte Carlo simulation. For each approach the steps are applied and described for the PRO-FIT organisation.

4.3.2.1. Sensitivity analysis

The first step in the sensitivity analysis is submitting the information necessary for the sensitivity analysis, like the choice of net income and the choice of boundaries. The NPV is used as the net outcome since it is used most frequently in this kind of analyses and it is easy to comprehend the changes in monetary terms. The range for the analysis is set automatic in the method, leading to a deviation of 10% on the predictions. Table 19 shows the information for the sensitivity analysis entered by PRO-FIT.

Table 19 - Required information sensitivity analysis PRO-FIT

Required information sensitivity analysis PRO-FIT	
Choose net outcome	Net present value (NPV)
Choose the range for the analysis	Automatic

With the use of the information for the sensitivity analysis and the free cash flow information, intermediate calculations can be made for each strategic alternative of PRO-FIT. The intermediate calculations are the second step of the sensitivity analysis. These calculations are usually not visible because they are happening in the background of the method. An example of a sensitivity analysis is provided, in which the expected return of the "merge and invest" strategic alternatives is adjusted to changes in the sales volume rate. This example is given in Table 20 and shows the NPV in the worst-case scenario and the NPV in the best-case scenario for the "merge and invest" strategic alternatives. Since it is predicted that the sales is going to increase with 12% and a range is set of 10% the worst-case scenario is that the sales volume increases with 2% while the best-case scenario is that the sales volume increases with 22%. These calculations are made for each of the three determined variables and the resulting net outcomes of each strategic alternative.

Table 20 - Example intermediate calculations sensitivity analysis "merge and invest"

Merge and invest	
Change in sales volume rate	Resulting NPV
2%	€ 1,177.96
3%	€ 2,054.77
4%	€ 2,968.14
5%	€ 3,919.46
6%	€ 4,910.16
7%	€ 5,941.70
8%	€ 7,015.63
9%	€ 8,133.49
10%	€ 9,296.91
11%	€ 10,507.56
12%	€ 11,767.15
13%	€ 13,077.45
14%	€ 14,440.29
15%	€ 15,857.54
16%	€ 17,331.13
17%	€ 18,863.06
18%	€ 20,455.37
19%	€ 22,110.16
20%	€ 23,829.62
21%	€ 25,615.96
22%	€ 27,471.48

With the use of the data resulting from the intermediate calculations in the previous step the output of the sensitivity analysis can be determined. For the changes in the three variables the resulting net outcomes of each strategic alternative are displayed. Table 21 shows the output of the sensitivity analysis.

Table 21 - Output sensitivity analysis for PRO-FIT

Output sensitivity analysis for PRO-FIT			
	Change in sales volume rate		
	Worst-case	Nominal	Best-case
Merge and invest	€ 1.177,96	€ 11.767,15	€ 27.471,48
Improve cost management	-€ 3.163,12	€ 3.555,24	€ 13.626,53
Expand to new market	-€ 13.882,79	-€ 12.693,80	-€ 11.127,21
	Change in price rate		
	Worst-case	Nominal	Best-case
Merge and invest	-€ 68.370,01	€ 28.876,78	€ 171.881,51
Improve cost management	-€ 42.155,83	€ 3.555,24	€ 68.749,19
Expand to new market	-€ 76.194,87	-€ 12.693,80	€ 80.194,06
	Change in production cost rate		
	Worst-case	Nominal	Best-case
Merge and invest	-€ 108.942,49	€ 2.781,49	€ 78.601,14
Improve cost management	-€ 45.873,20	€ 3.555,24	€ 38.197,54
Expand to new market	-€ 92.502,83	-€ 12.693,80	€ 41.883,04

From Table 21 can be seen that a change in sales volume rate has the most effect on the "merge and invest" strategic alternative. This strategic alternative has the largest changes in the net outcome when the sales volume rate changes. However, even though the "merge and invest" strategic alternative seems to be the most sensitive, the "expand to new market" is at each change of the sales volume negative. Therefore, even though the "expand to new market" strategic alternative is not most sensitive, it is most risky in terms of changes in sales volume rate. The sensitivity graph in Figure 24 clearly shows the sensitivity of the net outcomes of the strategic alternatives to a change in sales volume rate.

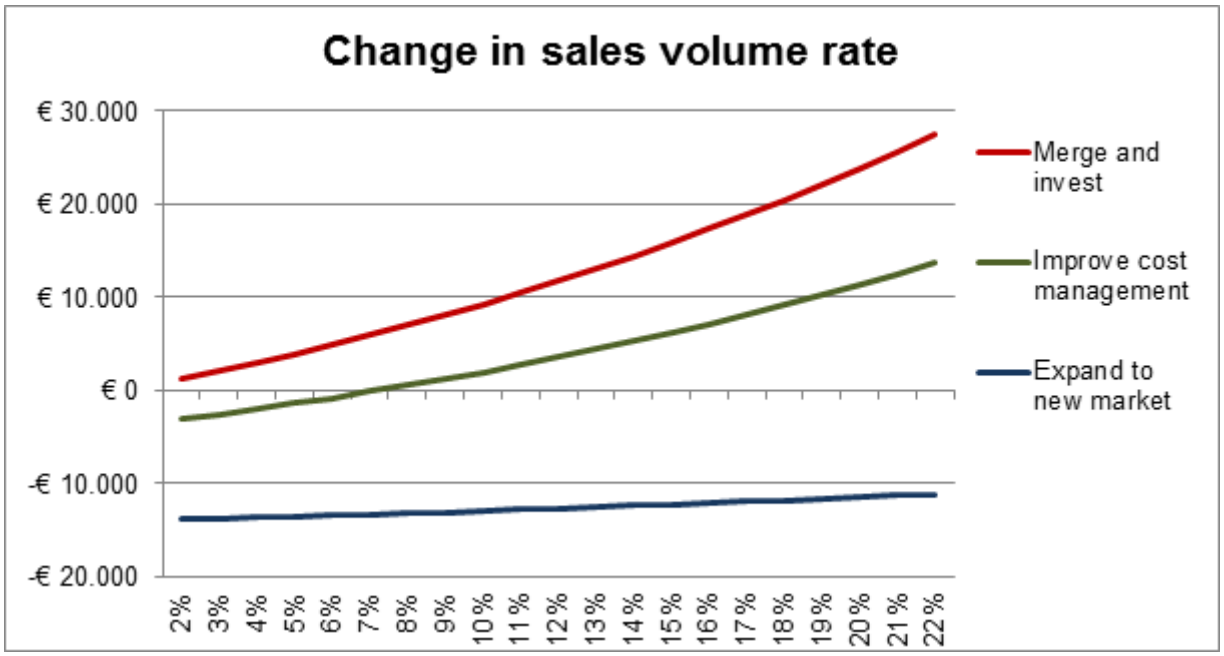

Figure 24 - Sensitivity graph change in sales volume rate

When the price rate changes it has the largest effect on the net outcome of the "merge and invest" strategic alternative. The change in price rate seems to have a significant effect on each outcome but the most on the net outcome of the "merge and invest" strategic alternative. The change in price rate has the least effect on the "improve cost management" strategic alternative. Consequently, the "improve cost management" strategic alternative has the least associated risk in terms of changes in price rate. The "merge and invest" strategic alternative might be the most sensitive when it comes to changes in the price rate but the "expand to new market" strategic alternative has the most risk. This strategic alternative has the worst outcome in the worst-case scenario and is more sensitive than the "improve cost management" alternative. Figure 25 shows the sensitivity graph of the effect of the change in price rate on the net outcomes of the strategic alternatives of PRO-FIT.

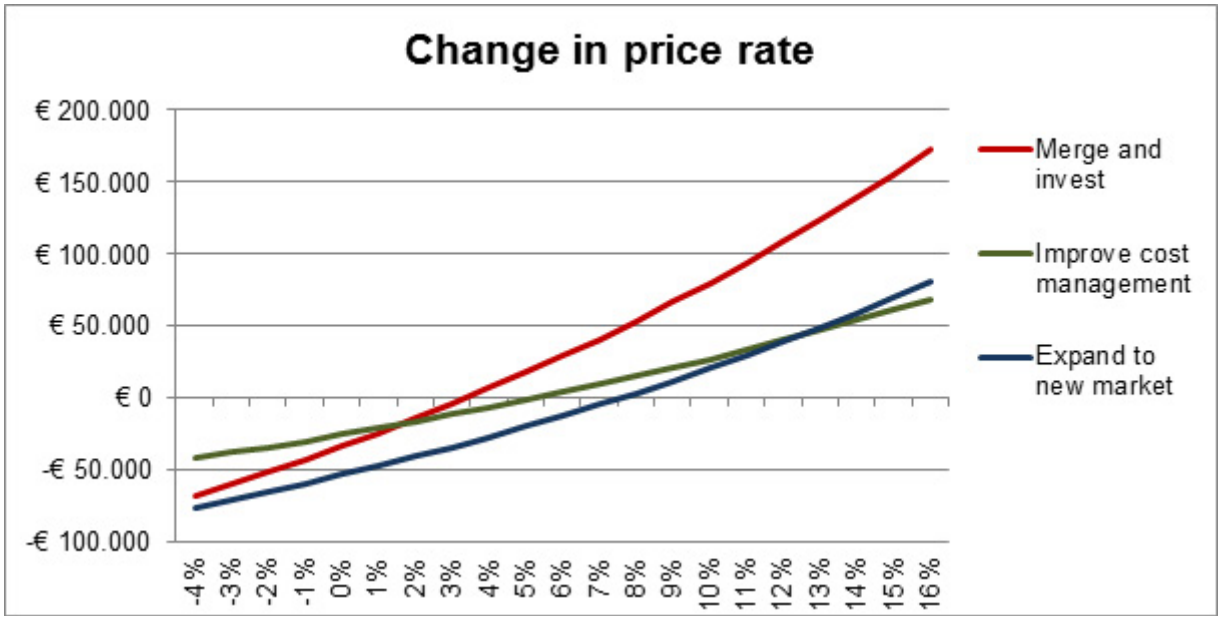

Figure 25 - Sensitivity graph change in price rate

Table 21 shows that again the “merge and invest” strategic alternative is the most sensitive, but in this case to changes in the production cost rate. However, interesting to know is that in the worst-case scenario not the “merge and invest” but the “expand to new market” strategic alternative will have the lowest net outcome. Therefore, the “merge and invest” might be most sensitive but it has also the highest net outcome for a large range of changes in the production cost rate. A sensitivity graph about the effect of changes in production cost rate on the net outcome of strategic alternatives can be seen in Figure 26.

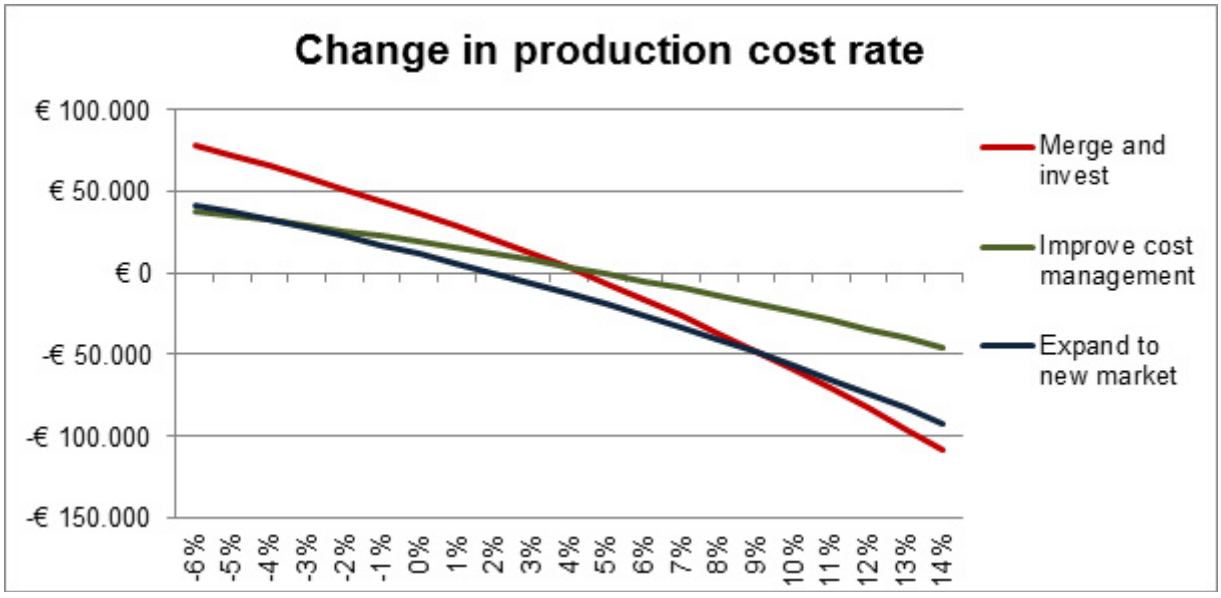

Figure 26 - Sensitivity graph change in production cost rate

Concluded can be said that the “merge and invest” strategic alternative is clearly the most sensitive to changes in the three variables. However, the sensitivity analysis shows that the “expand to new market” strategic alternatives has the lowest net outcomes in several situations which will lead to believe that this strategic alternatives has the most associated risk. The "improve cost management” strategic alternative has the lowest sensitivity to the changes in variables and has accordingly the least associated risk.

4.3.2.2. Monte Carlo simulation

The Monte Carlo simulation is the second approach to determine the associated risk of the strategic alternatives of PRO-FIT. The first step for the Monte Carlo simulation is, just like the sensitivity analysis, the submission of information needed for the simulation. The boundaries need to be determined for each of the strategic alternatives. The range for the Monte Carlo simulation for the strategic alternatives of PRO-FIT are automatically set at the 10%. Table 22 shows the required information for the Monte Carlo simulation.

Table 22 - Required information Monte Carlo simulation PRO-FIT

Required information Monte Carlo simulation PRO-FIT	
Choose the range of the analysis	Automatic

The second step in the Monte Carlo simulation is the establishment of the intermediate calculations needed for the Monte Carlo simulation. 10.000 scenarios are computed in which for each scenario the sales volume rate, the price rate, and the production cost rate are randomly chosen between the set ranges. For each scenario the corresponding NPV for each strategic alternative is computed. With these data tables the output of the Monte Carlo simulation can be determined. Displaying the outcomes of the Monte Carlo simulation for the strategic alternatives of PRO-FIT is the last step in the Monte Carlo simulation.

Table 23 - Output Monte Carlo simulation PRO-FIT

Output Monte Carlo simulation PRO-FIT			
	Merge and invest	**Improve cost management**	**Expand to new market**
Worst-case (minimum) outcome	€ -249,702.37	€ -121,981.39	€ -218,274.53
Average (mean) outcome	€ 15,268.17	€ 4,875.78	€ -11,685.84
Best-case (maximum) outcome	€ 330,409.75	€ 159,958.90	€ 206,740.36
Chance of a negative outcome	45.93%	47.38%	59.92%
95% chance of outcome between:	€ 13,511.48 - € 17,024.86	€ 4,026.62 - € 5,724.95	€ -12,307.91 - € -11,063.77

Based on the output of the Monte Carlo simulation from Table 23 can be determined that the "expand to new market" strategic alternative has the most associated risk. The chance on a negative outcome for this strategic alternative is higher than the other strategic alternatives; there is a 59.92% chance on a negative outcome. The "merge and invest" and the "improve cost management" strategic alternatives have almost the same associated risk. While the first strategic alternative has a 45.93% chance on a negative outcome the "improve cost management" has 47.38% chance on a negative outcome. In general the "merge and invest" strategic alternative has the least associated risk except for the worst-case scenario. In the worst-case scenario this strategic alternative will have the worst possible outcome of the three strategic alternatives. Also, based on the simulation can be determined that the "merge and invest" strategic alternative has a 95% chance that the net outcome will be approximately between the €13,511 and the €17,025. This strategic alternative has the most optimistic rating for the 95% interval. In comparison the "improve cost management" strategic alternative has a 95% chance on a net outcome between the €4,027 and the €5,725. These results for the two strategic alternatives are fairly close to each other. The "improve cost management" strategic alternative is overall the safest option because of the favourable net outcome at a worst-case scenario. PRO-FIT has to determine whether it finds the associated risk acceptable or whether the associated risk falls within its appetite for risk.

4.4. Summary for the assessment based on return and risk

From Table 17 can be seen that the "merge and invest" strategic alternative will yield the highest expected return for PRO-FIT, since it has the highest NPV and IRR, and the shortest discounted payback period. Based on this initial assessment of the expected return can be said that the "merge and invest" strategic alternative will be the right strategy for the organisation and has to be implemented. However, when assessing the strategic alternatives based on the associated risk there is acknowledged that the "merge and invest" strategic alternative is the most sensitive to changes in the variables. Nevertheless, it has the lowest chance on a negative outcome and the range to which the net outcome will fall with a certainty of 95% is the most favourable. The sensitivity analysis identifies that the "expand to new market" strategic alternative has the most associated risk since its net income is negative for many of the scenarios, which is confirmed with the Monte Carlo simulation.

The "expand to new market" strategic alternative is not a viable option for PRO-FIT since it has the lowest expected return and the associated risk is the highest. This leaves the "merge and invest" and the "improve cost management" strategic alternatives. If the organisation is prepared to take on a little more risk it should choose the "merge and invest" strategic alternative. This strategic alternative will yield the highest returns for PRO-FIT, while the associated risk is almost equal to the "improve cost management" strategic alternative. If the organisation wants to minimise the exposure to risks it should choose the "improve cost management" strategic alternative since this alternative yields sufficient returns but has less associated risk than the "merge and invest" strategic alternative. The "improve cost management" strategic alternative is least sensitive to changes in the variables and it has the most favourable outcome at the worst-case scenario in the Monte Carlo simulation. PRO-FIT has to decide whether the associated risk for the strategic alternative with the highest expected return is acceptable and fits within the risk appetite. If PRO-FIT will accept some associated risk it should go with the "merge and invest" strategic alternative. If PRO-FIT wants to eliminate most of the associated risk it should implement the "improve cost management" strategic alternative.

In addition to the QSPM assessment of the strategic alternatives this assessment shows that the "merge and invest" strategic alternative is acceptable in terms of expected return and its associated risks are also not that high. PRO-FIT has learned the possible returns for each strategic alternatives and the associated risk. The organisation can make a well-informed decision not only on the QSPM analysis but also on the expected return and associated risk assessment.

5. Evaluation of the method

Through the demonstration a first evaluation of the method is made. The problems that occurred during the demonstration are processed and solved. The method is further evaluated with the use of two different evaluation techniques. Firstly, the underlying assumptions of the method are tested with the use of data from the Strategic Alignment survey. This questionnaire contains a section about evaluating expected return and associated risk. The foundation on which the method is based is evaluated with the findings from this first evaluation technique. Second the method is evaluated in detail through in-depth interviews with experts in the field. Through these in-depth interviews the steps of the method and the functionalities are evaluated.

5.1. Section Strategic Alignment survey evaluating the method

In the Strategic Alignment survey conducted in Part I of this paper a section is added about strategic decision making and the use of expected return and associated risk to assess strategic alternatives. This section is included in the survey to get a better understanding about the efforts and experiences of organisation in assessing strategic alternatives based on expected return and associated risk.

5.1.1. Development of the questions and collection of the data

Whether organisations actually evaluate the expected return and associated risk of strategic alternatives during strategic decision making is not identified until so far. To get a better understanding of the decision making process of organisations a section is added to the Strategic Alignment survey from Part I of this paper. There are four indicators developed from the literature review to determine how well organisations evaluate the expected return and associated risk, which can be found in Table 24. The first two indicators determine whether organisations take return and risk sufficiently into consideration during strategic decision making. The last two indicators for return and risk determine whether strategic alternatives are sufficiently compared based on the financial return and associated risk.

Table 24 - The indicators for measuring the return and risk (RAR)

Indicators for Return and Risk (RAR)		
Concept	**Definition**	**Item**
Consider return	Return is sufficiently taken into consideration when making strategic decisions.	RAR1
Consider risk	Risks are sufficiently taken into consideration when making strategic decisions.	RAR2
Compare return	Strategic alternatives are sufficiently compared on their financial return.	RAR3
Compare risk	Strategic alternatives are sufficiently compared on their associated risk.	RAR4

To be able to collect the necessary data some general closed-ended questions are formulated in which information is gathered about whether organisations evaluate the return and risk, whether they want to evaluate the return and risk, and which methods they use when evaluating the return and risk. For the four indicators closed-ended questions are formulated in the form of statements. These questions are coded and the answer categories are written down. A part of the codebook is mentioned in Table 25 and the entire codebook can be found in Appendix C – The codebook of Part I from this paper. Accordingly, the entire return and risk section within the Strategic Alignment survey can be found in the Appendix B – The survey from Part I of this paper.

Table 25 - Codebook for the indicators of risk and return (RAR)

Item	Question	Answers
RAR	***Return and risk***	
RAR1	Return is sufficiently taken into consideration when making strategic decisions.	1 = strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree 6 = n/a
RAR2	Risks are sufficiently taken into consideration when making strategic decisions.	
RAR3	Strategic alternatives are sufficiently compared on their financial return.	
RAR4	Strategic alternatives are sufficiently compared on their associated risk.	

The items for return and risk are tested for reliability with the use of Cronbach's Alpha in Part I of this paper. This shows whether the items assigned to the return and risk construct are consistently reflecting the construct. With a score of 0.864 it is safe to say that they do consistently reflect the construct, thus there is internal consistency. Just like the other constructs of the questionnaire the return and risk construct is tested on skewness and kurtosis. While skewness measures the asymmetry of the distribution the kurtosis measures the shape of the distribution. The construct is asymmetrical distributed with a skewness score of 0.521. However, the construct has a close to normal distribution with a kurtosis score of 0.080 which is close to zero.

5.1.2. Analysis of the data and discussion of the findings

The data from the questionnaire is analysed and is used to gather insights about whether organisations evaluate the expected return and associated risk of strategic alternatives. From Table 26 from Appendix B - Analysis of data from questionnaire can be seen that about 41.9% of the organisations frequently or always evaluate the expected return of strategic alternatives. Approximately 41.2% evaluate the return sporadically or never. This means that quite a large part of the organisations do evaluate the expected return to assess strategic alternatives, which is also shown in Figure 27. Even though some organisation do not evaluate the expected return there is willingness among them to do consider it. 75.2% of the organisations are willing to evaluate the expected return while 22.8% is willing to consider it. Figure 28 shows that only 2.1% does not want to evaluate the expected return of strategic alternatives.

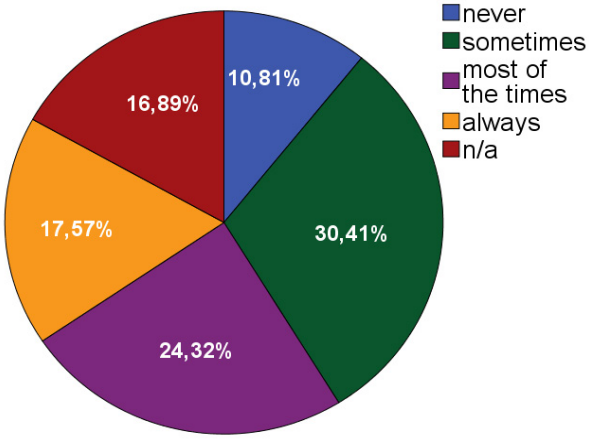

Figure 27 - Percent of organisations evaluating the expected return of strategic alternatives

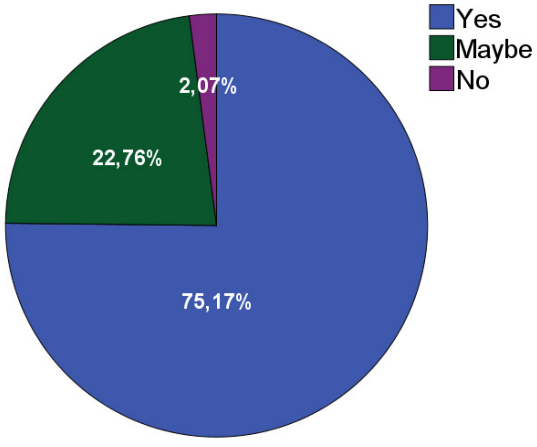

Figure 28 - Percent of organisations that find it useful to evaluate the expected return

A large part of the organisations that do sporadically, frequently or always evaluate the expected return use the ARR (ROI). Of those organisations 43.7% uses the ARR according to Table 30 from Appendix B - Analysis of data from questionnaire. The payback period is second most used; 41.2% of the organisations use this method to evaluate the expected return. The NPV is the third most frequently used method for determining the expected return, about 34.5% of the organisations use the NPV. Figure 29 shows all of the methods for evaluating the expected return and the percent of organisations that use them. In the literature review is suggested that the non-discounted methods are most frequently used, and from the discounted method the NPV and the IRR. The results of the questionnaire correspond with the found literature. The ARR and the payback period, which are non-discounted methods, are most frequently used. The NPV and the IRR closely follow and are used by a somewhat smaller amount of organisations.

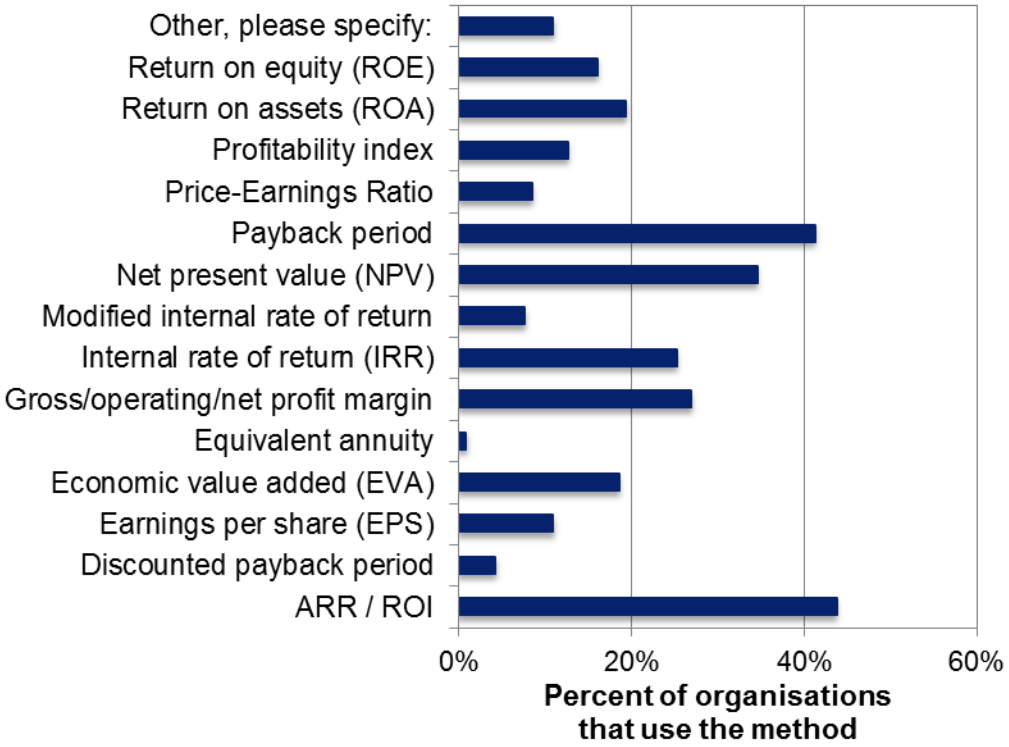

Figure 29 - Percent of organisations using methods for evaluating the expected return

About 45.0% of the organisations are frequently or always evaluating the associated risk of strategic alternatives, as can be seen from Table 27 in Appendix B - Analysis of data from questionnaire. Approximately 42.8% of the organisations sporadically or never evaluate the associated risk. Consequently, more organisations are frequently evaluating the associated risk than the organisations only sporadically evaluating the associated risk. The distribution of organisations evaluating the associated risk can be seen in Figure 30. Interesting is that an extremely high amount of organisations are willing to evaluate the associated risk; from Figure 31 can be seen that this is 89.5%. Another 8.8% is willing to consider the evaluation of the associated risks and only a mere 1.8% does not want to evaluate the associated risk.

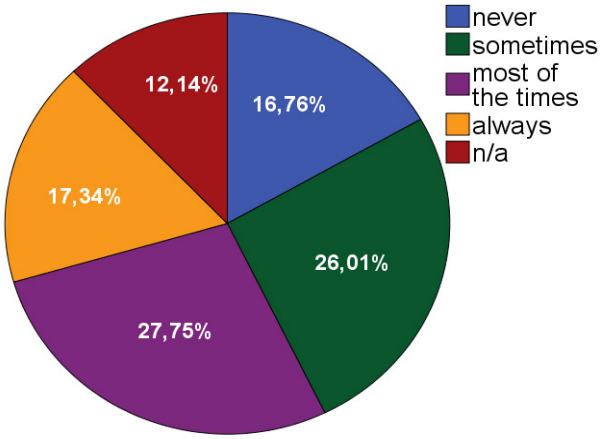

Figure 30 - Percent of organisations evaluating the associated risk of strategic alternatives

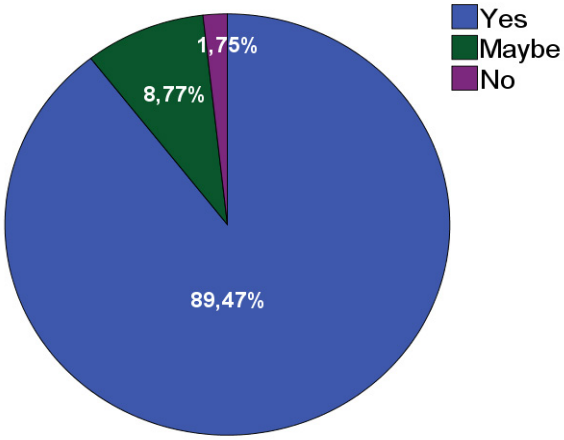

Figure 31 - Percent of organisations that find it useful to evaluate associated risk

The organisations that do evaluate the associated risk use most often scenario analysis as the method for evaluating the risk. From Table 31, in Appendix B - Analysis of data from questionnaire, can be seen that 67.2% of the organisation use scenario analysis. This method exceeds the other methods by far; the only other method that is used by a relative large part of the organisations is probability analysis. About 32.8% of the organisations use decision trees and therefore probability analysis to evaluate the associated risk. The third method which is used by about 19.7% of the organisations is sensitivity analysis. These findings are also coherent with the literature. In the literature review is suggested that scenario analysis is most often used by organisations because of its simplicity. While other methods might yield more consistent results these are often considered too complex for the organisations. All risk assessment methods and the percent of organisations that use them can be found in Figure 32.

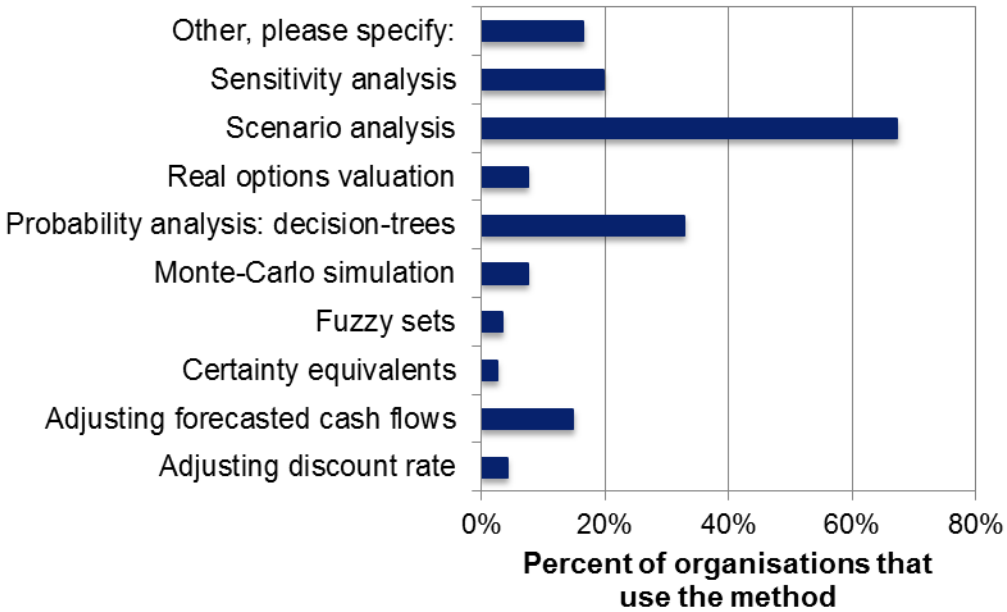

Figure 32 - Percent of organisations using methods for evaluating the associated risk

As last the respondents had to answer four statements representing the four indicators of the construct return and risk. Table 32, from Appendix B - Analysis of data from questionnaire, shows that the organisations do not sufficiently consider risk to the same extent when making strategic decisions as they do sufficiently consider return. About 45.7% of the organisations

sufficiently take return into account compared to 39.8% of the organisations that sufficiently consider risk. From Figure 33 can be seen that a more organisations do not consider risk compared to the amount of organisations not considering return. For the next two indicators the same trend occurs. About 36.6% of the organisations sufficiently compare strategic alternatives based on their financial return while 34.1% of the organisations compare strategic alternatives based on their associated risk. Even though the differences are small these findings suggest that organisations are better at evaluating the expected return than evaluating the associated risk.

From Figure 33 can be seen that organisations are not sufficiently considering the return and risk during strategic decision making. Improvements can be made since many organisations think that the strategic alternatives are not sufficiently compared on expected return and associated risk. From the lack of literature providing actual guidelines or concrete examples for assessing strategic alternatives based on expected return and associated risk, these findings were expected.

Figure 33 - Percent of organisations that (strongly) disagree with the proposed indicator

5.2. In-depth interviews evaluating the developed method

In the research methodology is described that the developed method will be evaluated with the use of the survey results and in-depth interviews. This paragraph focusses on the use of in-depth interviews to evaluate the method. In the first sub-paragraph more is explained about the methodology of in-depth interviews. The second sub-paragraph is used to describe the analysis of the responses on the in-depth interviews.

5.2.1. Methodology of the in-depth interviews

In-depth interviews are qualitative interviews. According to Babbie (2010) qualitative interviews are based on a set of topics to be discussed in depth. In contrast with the survey the qualitative interview is based on a face-to-face discussion with some experts instead of the use of internet-mediated and standardised questions. Hevner et al. (2004) describe that in-depth interviews can be used as a descriptive evaluation of the method. Information from these interviews can be used to build a convincing argument of the method's utility. In this research the information will also be used to make some adjustments to the developed method, thus to improve the functionality of the method.

In general the in-depth interview is an interaction between an interviewer and a respondent in which the interviewer has some topics which are going to be discussed. For this research the topic of the discussion with the experts will be about the developed method for assessing strategic alternatives based on expected return and associated risk. The plan of inquiry involves several parts. First the motivation behind the development of the method is described. Second the conceptual model is explained including the reasoning behind the construction of the conceptual model. In the third place the steps within the method are one by one discussed in detail. As last is asked about the general impression of the experts about the developed method. There is no set of questions developed except for some unstructured questions. The goal is to establish a general direction for the conversation and let the respondent do most of the talking (Babbie, 2010). At all points in time the respondent can make remarks about what is described which might lead to a discussion.

In this second part of the evaluation in-depth interviews are held with experts on the topic concerning the developed method. These respondents give their experienced opinion on what is developed. The respondents are selected based on their knowledge on aspects such as financial assessment, risk assessment, strategic management, or strategy development. Two experts were willing to give their opinions and suggestions for the sake of evaluating the method. On Thursday 17 July 2014 the first respondent is interviewed. This respondent is an independent entrepreneur and a teacher specialised on financial accounting and business administration. The second interview is held on Thursday 14 August 2014. This respondent is currently a chief financial officer and is experienced with the disciplines finance, strategy, control, corporate finance, merges and acquisitions, transaction advisory, etcetera.

5.2.2. Analysis of the responses and discussion of the remarks

In design science research qualitative interviews are used to evaluate the developed artefact, which is in this case the developed method. The reasoning behind the development and the functionality of the method are tested with use of the data resulting from these interviews. From the in-depth interviews the main remarks will be described below.

5.2.2.1. <u>The main remarks about the reasoning behind the development of the method</u>

According to one of the respondents the fact that there is no actual qualitative assessment made of the risk associated with strategic alternatives might confuse people. Especially, small and innovative organisations identify risk factors with the use of Porter's five forces. They are familiar with these kinds of risk assessment. An only quantitative assessment of the risk might be difficult to comprehend for most organisations. The focus of this research is about making a trade-off between return and risk. Which kind of risks an organisation could identify for each strategic alternative is described in the literature review. However, it is challenging and nearly impossible to develop a model for assessing the qualitative risk since these are different for each organisation and even different for each strategic alternative. In the limitations of this research is described that scenario analysis or probability analysis could be used to determine the risk associated with each variable of the strategic alternative. This information could be used to set the boundaries of sensitivity analysis and Monte Carlo simulation with more certainty. The respondent also mentioned that it might be sufficient that the risk assessment is combined with scenario analysis through the worst-case and best-case scenarios as a range for the analysis or simulation.

Another remark is that this method is difficult to apply to organisations that are downsizing quickly and to organisations that are growing quickly. According to this respondent the method is suitable for organisations with a relative stable situation. In the developed method all the costs are dependent on the change in sales volume. This is not the case for organisations that are growing or downsizing quickly. Organisations with a high growth rate make large expenses in the beginning compared to their incoming revenues. Therefore the costs are not dependent on the sales volume but are made to be able to increase the sales volume. Contrary, organisations that are not doing well and are downsizing quickly will eventually reach a bottom of the fixed costs in which the costs cannot decrease anymore. In this case the costs are also not dependent of the sales anymore. One respondent mentioned the necessity of determining the target group for which this method might be relevant. Consequently, this method is mainly useful for organisations with a stable financial situation.

While both respondents acknowledged the importance of using the free cash flow for the calculations one of them also mentioned that many organisations do not use it. They find the concept of net working capital too difficult to comprehend and would rather use the normal cash flow. In this method there is a possibility to leave out the adjustments on the net profit resulting in the free cash flow. In this case they will work with the normal operational cash flow instead of the free cash flow. What the organisations submit to the method is optional which might resolve their difficulties with determining the free cash flow.

5.2.2.2. The main remarks about the functionality and the steps of the method

The assumptions made about the influence of the four variables on the expected return are questioned by both respondents. One of them mentioned that all costs under pressure could be flexible and therefore be influenced by the sales volume. Consequently, the sales volume should influence the revenues, the cost of goods sold, the SG&A expenses, depreciation, but also the capital expenditures. Most of these assumptions were made in the method. However, the influence of sales volume on capital expenditures is not acknowledged. The respondent mentions that the sales volume is made possible by an increase in fixed assets. An increase in fixed assets will lead to an increase in depreciation. Furthermore, an increase in fixed assets is also an increase in the capital expenditures of an organisation. It could be argued that an increase in sales volume has an influence on the deprecation and the capital expenditures.

A remark was made about the choice of discount rate. Related to the risk assessment is asked whether the discount rate was determined of the organisations. Explained is that the discount rate is not calculated. A way is provided for them to determine the discount rate in the literature review, by the WACC formula. A standard discount rate of 15% is provided for the method and an organisation has the choice to change it to a discount rate of its own choice. Another suggestion is to make the pre-determined discount rate different for small and large organisations. A larger organisation has normally a lower discount rate than a smaller organisation. This can be taken into account if the method is further developed.

A question is raised about the investment outlay. According to one respondent the investment outlay is the capital expenditures and the changing net working capital. In this situation the investment outlay is identified as the capital expenditures and the change in net working capital that are related to the implementation of a strategy. These are not the normal working capital and expenditures that are needed for everyday activities but especially those costs associated with a strategic alternative. The capital expenditures and the changing net working capital that are submitted for the base year are seen as maintenance investments while the

costs for fixed assets and investments associated with strategic alternatives are seen as the investment outlay. This distinction is more clearly stated in the description of the method.

The boundaries of the sensitivity analysis and Monte Carlo analysis were set fixed for each strategic alternative. One of the respondents came with the suggestion to let the initial predictions change with a determined range creating boundaries specific for each strategic alternative. This range, for example a change of 10%, is set around the percentage set for the variable in the return assessment. This suggestion is considered and added to the method to make the boundary setting specific for each strategic alternative.

Concluding, there were small suggestions and remarks made about certain aspects of the method. These are all regarded and when necessary changes are made or aspects are added in the method.

6. Discussion, conclusions and limitations

In this last chapter of the research the result of the research is mentioned and appraised in the discussion. In the discussion and conclusions an answer is given on the main research question of this research. A review is made about whether the problem statement of this research is addressed and whether a solution has been presented. In the last parts of this chapter the limitations of the research and recommendations for future research are described.

6.1. Discussion and conclusions

The sub-research questions are answered throughout the research and these answers will be discussed here shortly. The expected return and associated risk of strategic alternatives should be determined to assess the acceptability of these alternatives. The acceptability of a strategic alternative influences the strategic choice in the strategic decision making. If the strategic alternative has no value for the organisation then this alternative is not acceptable. The value is in this situation determined by the expected return and the associated risk of strategic alternatives. The expected return can be calculated with the use of NPV, IRR, PI, discounted payback period, ARR, and the payback period. According to the evaluation and literature review the non-discounted methods are most often used, even though the NPV is the best method for determining the value. The associated risk can be determined with the use of sensitivity analysis and Monte Carlo simulation. These two methods are both combined with scenario analysis. From the literature review and the evaluation of the method can be concluded that only a few organisations use Monte Carlo simulation, some use sensitivity analysis, but most organisations use scenario analysis to assess the risk. Scenario analysis is used because of its simplicity and it is therefore combined with sensitivity analysis and Monte Carlo simulation in the developed method. In Chapter 3 of this method the steps from the method are explained and described. The method can be divided into two parts: the estimation of expected return and the estimation of associated risk. In the estimation of the expected return the following five steps can be followed:

- required accounting information;
- free cash flow calculation;
- required information for strategic alternatives;
- intermediate calculations for the return of strategic alternatives;
- output expected return of strategic alternatives.

The estimation of the associated risk can be divided into two ways for determining the risk: the sensitivity analysis and the Monte Carlo simulation. For each method for estimating the associated risk there are three steps that have to be followed:

- the required information;
- the intermediate calculations;
- the output.

This research is conducted to be able to answer the main research question, "*How can strategic alternatives be assessed based on an estimation of their expected return and their associated risk?*". The developed method for assessing strategic alternatives based on expected return and associated risk from this research provides an answer on this question. This method is especially developed to answer this main research question. When following the steps from this method the strategic alternatives are assessed based on expected return and associated risk.

Even though an answer is provided to the main research question it is not sure that the proposed problem of this research is solved. The solution in the form of a developed method

might answer the research question but is it also the solution for the problem. The problem statement of this research is as follows:

> *When the expected return and associated risk of strategic alternatives are not estimated in the strategic decision making process, organisations make poorly informed strategic choices and they might waste time, effort and resources when implementing a strategic alternative which does not create value.*

With the use of this method, in which strategic alternatives are assessed based on return and risk, organisations will make better informed strategic decisions. A better informed and well-considered strategic decision supports organisations in choosing the strategic alternative that is suitable, feasible, and acceptable. This will avoid a waste of time, effort, and resources occurring because of a wrong strategic choice between strategic alternatives. During the demonstration is noticed that this method for assessing strategic alternatives can easily be used in addition to the QSPM. The results give some relevant insights which were not obtained with only the QSPM. Therefore, it can be said that organisations will make well-considered strategic decisions while using this method to assess strategic alternatives based on expected return and associated risk.

Nevertheless, even though the demonstration and the evaluation of the method provided optimistic results suggesting the relevance of the developed method there are also some points in the method in which choices were made which might be reconsidered. These choices and the limitations of the developed method are described in the following paragraph.

6.2. Limitations of the research

Within the design science research choices are constantly made to develop the artifact. With each choice is considered which direction the development should take and what is left out of the scope of the development. If different choices were made there could have been a different outcome and thus a different developed method. Each choice that is made during the development was seen as the best course of action for developing this method. However, these choices still propose some limitations for this design science research.

The first limitation is the choice of using accounting information as the foundation of the method. The accounting information is used as the foundation of all calculations and is therefore crucial to the functionality of the method. Which accounting information has to be submitted is determined by literature and common practises. Even so, the general terms used for the accounting information do not apply for all organisations. The required accounting information is mainly based on the financial statements of an organisation with operating activities. For organisations with no operating activities it is challenging to determine what the revenues, the cost of goods sold, and the SG&A expenses are. For instance, an insurance company is a service organisation which does not produce any products and therefore the financial statements have a different outlay than is suggested in the method. Those organisations will find it difficult to provide the required accounting information.

Another limitation occurs because of the needed simplicity of the method; not all the accounting information is asked to keep the method understandable. This limitation could lead to distorted results which do not actually reflect the net profit and the free cash flow of the organisation. A complete and comprehensive gathering of the right accounting information will make the method complex and time consuming for its users. Consequently, the choice is made to leave some information (not of crucial importance) out of the method, regardless of

the consequences. Even though the method is based on predictions and can never actually reflect the outcomes of an organisation over a time period, this choice still makes the expected outcomes less reliable.

For determining the influence of a strategic alternative on the expected return of the organisation four variables are mentioned. These four variables are proposed changes which occur through the implementation of a strategic alternative such as changes in sales volume, changes in price rate, changes in production cost rate, and an incurring investment outlay. In this research is mentioned that there are many more variables influenced by a strategic alternative. However, to maintain the simplicity of the method it is only asked to predict the changes for the four proposed variables. With the choice of these four variables other changes, which might occur because of the implementation of a strategic alternative, are left out of the analysis. These changes might also influence the expected return of a strategic alternative which is in this method not considered. Another limitation is that the changes for each variable are predicted and are therefore subject to human bias and human error. A prediction never accurately reflects the future situation and the output is as accurate as the input. Consequently, if the predictions are not reflecting a credible situation in a period of time then the assessment will not result in plausible outcomes.

When predicting the changes made by a strategic alternative there is asked for a fixed percentage for each year. For instance, if a growth of 2% for the sales volume is predicted this growth will be calculated for each year until the terminal year of the prediction period. It could be the case that the sales volume of a strategic alternative is only increasing after year three while the others have an immediate increase. The method does not account for periodically changes in the four variables. With some adjustments to the method a variable rate for the three variables can be submitted. However, this change will endanger the simplicity of the method.

One of the last limitations of the proposed method is that for both the sensitivity analysis and the Monte Carlo simulation no other risks are taken into account than the changes in the mentioned three variables. While these methods are used as a risk analysis they only focus on the financial aspects and outcomes. For a more comprehensive and qualitative risk analysis it might be better to extent the scenario analysis to see which risks could occur for each strategic alternative. To make such an evaluation of the risk a qualitative risk assessment is required. This developed method does not take these other qualitative risks into account.

6.3. Recommendations for future research

The first recommendation for future research is to find a way to make this method easily useable for all kind of organisation with or without operating activities. In this research a method is developed which is useable for a large part of the organisations but propose still some difficulties for organisations with a different structure. It is a daunting task to analyse all these different kind of organisations with one method without making the method complex.

This method is limited to four variables than influence the performance outcome of an organisation because of changes caused by a strategic alternative. A recommendation for future research is to investigate the effect of a strategic alternative on an organisation and to make an identification of which variables are influenced. The goal should be to examine how strategic alternatives influence the performance outcomes and which variables are most important. With the use of such an evaluation the prediction will be more accurate and reliable and there might be more than four variables identified.

Another recommendation is to explore the possibilities of linking qualitative risk analysis with the use of this method, perhaps through the use of a more extensive scenario analysis. In this method only a worst-case and best-case scenario for each strategic alternative is devised. By making an extensive scenario analysis or even a probability analysis more information would be available about the risks associated with a strategic alternatives. This information can be of use for this method with some adjustments.

The last recommendation is to explore the possibilities of Monte Carlo simulation. Monte Carlo simulation is in this method used to see what the chance is on a negative net outcome. Unfortunately Monte Carlo simulation is not often used with a practical perspective and it is difficult to see which results and insights such a method produces. Organisations should be aware of the functionalities of the Monte Carlo simulation. It might be good to understand why organisations do not use this method often and when they would use such a method to analyse the risk.

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Appendix A - Model-based approach (Aldea et al., 2013)

The model that is developed for analysing and implementing a strategy consists of five steps which can be followed and form the strategic planning process. These five steps are the visioning process, strategy analysis, strategy formulation, strategy implementation, and strategy evaluation. These five steps can then be rephrased to nine phases: visioning process, business model, environmental analysis, strategic options, strategic choices, strategy elaborations, measurements & metrics, strategy implementation, and strategy evaluation. These nine phases are graphically displayed in Figure 34. For each of these phases there is at least one strategy model used. In this method two paths can be followed: the 'conventional' path and the 'alternative' path. What path is chosen can be determined by the experience of an organisation in their market and industry and the possessed information. The 'conventional' path is chosen when there is not much information about the internal and external environment. The 'conventional' path explores the options within the current market and/or industry. The 'alternative' path is chosen when there is enough information about internal and external environment and when the current market and/or industry are not attractive any more. The 'alternative' path explores the options of an organisation in a new market and/or industry. The choice of which path to take is made in the analyse environment, develop strategic options, and choose strategy phases.

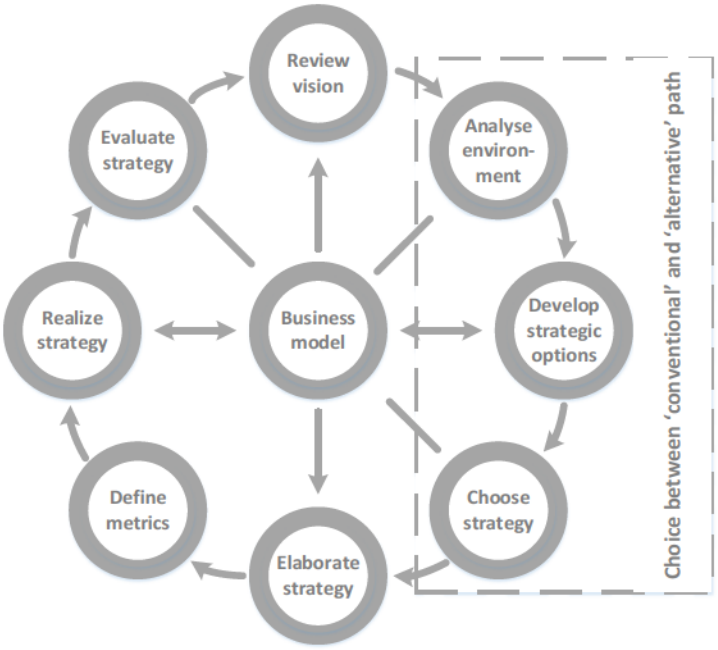

Figure 34 - Strategy analysis and implementation method

As already said, there is at least one strategy model used for each phase of the strategy analysis and implementation method. There are several strategy models selected: Balanced Scorecard, Blue Ocean Strategy, Business Model Canvas, Dynamic Capabilities, Five Forces Framework, Marketing Mix, PEST, QSPM, Resource Based View, Strategy Map, and SWOT. Next to this, Enterprise Architecture is used to operationalise the formulated strategies, goals and objectives. TOGAF is selected to be used in the design of the method together with the ArchiMate modelling language. In the next part each phase of the method is explained in terms of which strategy model is used and what the goal of the phase is. Figure 35 shows how the method can be used, it displays which steps for each phase there should be taken in order to analyse, implement and evaluate a strategy.

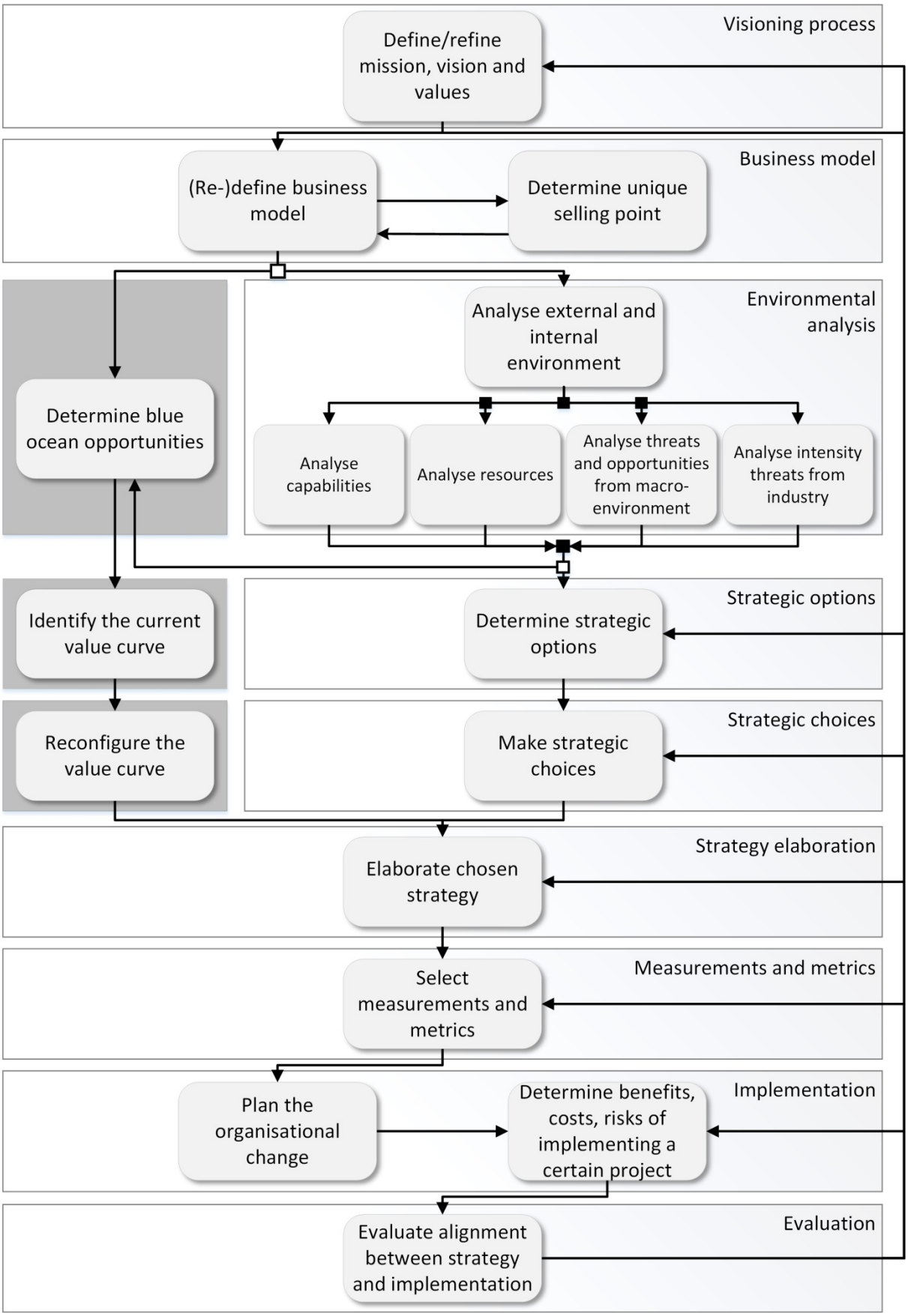

Figure 35 - Overview strategy analysis and implementation method

Appendix B - Analysis of data from questionnaire

Table 26 - Organisations evaluating the expected return during strategic decision making

Evaluate the expected return of strategies when making strategic decisions		
	Frequency	Percent
Never	16	10.8%
Sometimes	45	30.4%
Most of the times	36	24.3%
Always	26	17.6%
n/a	25	16.9%

Table 27 - Organisations evaluating the associated risk during strategic decision making

Evaluate the associated risk of strategies when making strategic decisions		
	Frequency	Percent
Never	29	16.8%
Sometimes	45	26.0%
Most of the times	48	27.7%
Always	30	17.3%
n/a	21	12.1%

Table 28 - Organisations that find it useful to evaluate the expected return

Useful to evaluate the expected return of strategies when making strategic decisions		
	Frequency	Percent
Yes	109	75.2%
Maybe	33	22.8%
No	3	2.1%

Table 29 - Organisations that find it useful to evaluate the associated risk

Useful to evaluate the associated risk of strategies when making strategic decisions		
	Frequency	Percent
Yes	153	89.5
Maybe	15	8.8
No	3	1.8

Table 30 - Organisations that use methods for evaluating expected return

Use of methods for evaluating expected return of strategic alternatives	Frequency	Percent
Accounting rate of return/return on investment (ARR/ROI)	52	43.7%
Discounted payback period	5	4.2%
Earnings per share (EPS)	13	10.9%
Economic value added (EVA)	22	18.5%
Equivalent annuity	1	0.8%
Gross margin/operating margin/net profit margin	32	26.9%
Internal rate of return (IRR)	30	25.2%
Modified internal rate of return	9	7.6%
Net present value (NPV)	41	34.5%
Payback period	49	41.2%
Price-Earnings Ratio	10	8.4%
Profitability index/benefit-cost ratio	15	12.6%
Return on assets (ROA)	23	19.3%
Return on equity (ROE)	19	16.0%
Other, please specify:	13	10.9%

Table 31 - Organisations that use methods for evaluating the associated risk

Use of methods for evaluating the associated risk of strategic alternatives	Frequency	Percent
Adjusting discount rate	5	4.1%
Adjusting forecasted cash flows	18	14.8%
Certainty equivalents	3	2.5%
Fuzzy sets	4	3.3%
Monte-Carlo simulation	9	7.4%
Probability analysis: decision-trees	40	32.8%
Real options valuation	9	7.4%
Scenario analysis	82	67.2%
Sensitivity analysis	24	19.7%
Other, please specify:	20	16.4%

Table 32 - Opinion of organisations on the indicators of the construct return and risk

Indicators of Return and Risk (RAR)	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	n/a
Return is sufficiently taken into consideration when making strategic decisions.	4.6%	22.5%	22.5%	38.2%	7.5%	4.6%
Risks are sufficiently taken into consideration when making strategic decisions.	1.7%	27.2%	27.7%	30.6%	9.2%	3.5%
Strategic alternatives are sufficiently compared on their financial return.	2.9%	23.3%	30.2%	30.2%	6.4%	7.0%
Strategic alternatives are sufficiently compared on their associated risk.	0.6%	29.5%	30.1%	30.1%	4.0%	5.8%