Business Opportunity Evaluation

Design of a model for opportunity evaluation

MSc in Business Administration

René Bolt

Moekotte

University of Twente

School of Management and Governance

UNIVERSITY OF TWENTE.

MOEKOTTE

Student	René Bolt
University	University of Twente, School of Management and Governance (SMG)
First supervisor	Dr. Matthias de Visser
Second supervisor	Dr. Kasia Zalewska-Kurek
Company	Moekotte Enschede
Supervisor	Peter Moekotte

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Preface

This document is the master thesis of student René Bolt for the study master in Business Administration. It is the result of my master thesis project, which was conducted at the company Moekotte located in Enschede, the Netherlands, from September 2013 through April 2014.

During the master thesis project, students are expected to develop and implement a research or design-orientated project. On completion, a public colloquium is held in which findings of the project are presented and defended.

This research focussed on developing a method which companies may use to evaluate potential new business opportunities in a tacit way, without relying on intuitive feelings, a problem the problem owner experienced. This thesis describes the problem cause, research questions, relevant literature on the subject, research methodology, results and finally, conclusions and implications on how to use the new business evaluation method.

I would like to thank Moekotte for providing me with a research context and an environment to write my thesis. More specifically, I would like to thank all colleagues of Moekotte for their help and support. Finally, I would like to thank Peter Moekotte, Matthias de Visser and Kasia Zalewska-Kurek for the supervising roles they provided during this assignment.

René Bolt

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Abstract

How can companies determine which potential business opportunities they should execute? This research aims to answer that question by developing a model which determines attractiveness of business opportunities. Based on that attractiveness, the model advises companies on whether or not to execute their business opportunities.

This research was conducted at Moekotte Enschede, a company which faces a problem in deciding whether or not to enter a new market. The research problem of this study is that the company has no concrete method of evaluating business opportunities. This leads to less certain decision-making, resulting in a weaker long-term strategy. Management has asked the researcher to provide them with a rational tacit and lean method for evaluating business opportunities. The main research question of this research was therefore formulated as; *How can Moekotte evaluate their business opportunities with relatively limited resources (i.e. limited time and knowledge)?* The evaluation method was chosen to be developed in such a way that it requires limited resources for its operation. This will increase usability for smaller companies.

A small number of methods that evaluate business opportunities is available in academic literature. However, available models have some practical limitations; they often focus exclusively on financial criteria and require large amounts of time to execute. In order to overcome these limitations, a model for business opportunity evaluation was developed in this research.

Deciding whether or not to enter a new industry depends on the attractiveness of the business opportunity. The assumption was made that business opportunity attractiveness can be determined by criteria that analyse aspects of the business opportunity. Therefore, the first research question investigated which of these criteria can be included into a model for opportunity evaluation. The second research question actually developed this new model for business opportunity evaluation.

The literature review analysed three 'ingredients' necessary for developing a model for opportunity evaluation. Firstly, theory for the evaluation of business opportunities was analysed. Some already existing models contained elements that may be included in the development of a new model for opportunity evaluation. Secondly, criteria that investigate the attractiveness of a business opportunity were mapped. These criteria formed input for the first research question which investigated which of the found criteria are suited for inclusion into a new model. A third ingredient analysed in the literature review is a is a format for decision-making. This format provides shape to the development of the new model in the second research question.

The first research question investigated which opportunity evaluation criteria from the literature review are best suited for inclusion into a new model. This was done by conducting semi-structured interviews with Moekotte's management, a type of experts on the subject. The 62 possible criteria resulting from the literature review were narrowed down to just 12 criteria in the first research question, ensuring leanness of the new model. Examples of categories for evaluation included the market in which the business opportunity was located, financial aspects of the opportunity and resources required for execution of the opportunity.

In the second research question, the new model for opportunity evaluation was developed. As format for the new model, the stage-gate format was chosen. The development process included designing stages and gates, adding criteria to individual gates, operationalisation of the criteria and finally, setting minimum scores of the criteria. These steps resulted a new model for analysing business opportunities; The *Business Opportunity Evaluation Method*. In order to test whether or not the model was actually executable for small companies such as Moekotte, the model was used in practice to analyse a current business opportunity of the company. This was used to write a reflection of the new model which includes possible improvements and future research directions.

The *Business Opportunity Evaluation Method* may be used by companies to analyse their business opportunities. It is suited for smaller companies that do not wish to spend large amounts of time and other resources to opportunity evaluation. The model provides an alternative to already existing models that analyse business opportunities. This research also adds to academic literature by showing which criteria are of interest to an SMEs, an aspect of opportunity evaluation that is (to the extent of the researcher), not yet strongly investigated in academic literature.

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Chapter 1. Introduction

1.1. General context

All companies share a common challenge; to survive within their own market(s). Part of that challenge is to periodically evaluate business opportunities in new markets, because existing markets will not exist indefinitely. The company Moekotte is currently facing this challenge. They are active in a number of sub-markets within the electro-technical engineering market and consider entering a new sub-market. However, the company has no sure way of finding out whether or not they should execute the opportunity. The company's management has so far relied on its gut feeling for evaluation of new business opportunities. Moekotte's managing director states that this leads to less certain decisions, which sometimes results in uncertainty during the execution of business opportunities. This raises an interesting question; how can companies evaluate their business opportunities? It is the aim of this research to contribute to the company and to academic literature by investigating in which ways business opportunities may be evaluated by businesses such as Moekotte.

1.2. Company profile

Moekotte is a company consisting of about 210 staff members spread out over five divisions and is active in the electrical engineering industry. Active markets, which are all part of the electrical engineering market, include; industrial IT systems, panel and module manufacturing, mechanical engineering, data networks and fire- and burglary protection. The market the company is currently considering to enter is the building automation market. This industry includes automation of all kinds of devices houses and public buildings, such as lighting, heating, ventilation and air-conditioning, air handling and security. The reason Moekotte is considering this market is that they believe it is closely related to their current activities, making it a logical step for them to enter it.

1.3. Assignment cause and problem statement

Assignment cause

According to Moekotte's management, Moekotte's long-term primary goal is continuity. In order to achieve this, they must periodically evaluate new markets. The company identified the building automation industry as a potential market, primarily because it is closely related to the current core activities of the company. It was then that the company faced a problem; *there is no structured method present within Moekotte for analysing business opportunities*. This resulted in uncertainty on whether or not to enter the new market. The problem is long-term and structural; it will also likely apply to future business opportunities of Moekotte.

Contributing factors to research problem

Other factors which contribute to this problem are the fact that previous entering of new markets has always been based on 'gut feeling' and instinct within Moekotte, lowering experience with evaluation of opportunities. Furthermore, the company has rarely entered new businesses in the past. Additionally, few resources are available for evaluation of industries. The organisation is mainly constrained within 'business as usual', as a result of the company's small size. Moekotte also wants to avoid risks associated with entering a new market as much as possible, including financial risks, strategic risks, damage to image, etc.. Analysing business opportunities more thoroughly does not necessary lead to less risk, but could lead to more calculated risks.

Assignment

Moekotte has asked the researcher to provide the company with a method for the evaluation of business opportunities. Having such a model would solve most of the problems discussed. Another advantage is that it would make discussion of new market opportunities more tangible, because the decision process can be written down. This will increase tangibility in decision-making the company is currently missing. This will furthermore enable the company to re-evaluate decisions made in the past.

Shortcomings in academic literature

Some authors developed practical evaluation methods for business opportunities, such as MacMillan, Siegel, and Narasimha (1986) and Woodruff and Gardial (1996, pp. 32-35). The former authors describe opportunity evaluation by venture capital organisations, the latter describes opportunity evaluation by companies.

A shortcoming of these models regarding the usability for small-medium enterprises (SMEs) such as Moekotte, is that they tend to be developed for specialised or larger organisations, who can commit many resources to opportunity evaluation. A good example of this can be found in the model of Woodruff and Gardial (1996), which is used in practice by Golicic, McCarthy, and Mentzer (2003). Golicic, McCarthy and Mentzer describe that their team consisting of three academic researchers executed a full business opportunity analysis (Golicic et al., 2003, p. 8). For SMEs such as Moekotte, this might not be feasible. Using three full-time employees can have a major impact on company results, something the managing director of the company confirmed. Another shortcoming of the two models is that the criteria that are evaluated in the model focus on different subjects than SMEs are likely to find important. This problem was confirmed with the managing director of Moekotte. Larger companies and investors are likely to be interested in financial returns, rather than factors such as growth and stability. The hypothesis is made that criteria that are part of an opportunity evaluation are different for SMEs compared to larger companies or investors. These shortcomings in existing models have led to the decision to develop a business opportunity evaluation method that is lean in its use; it has to be executable with limited resources.

Problem statement

All of the causes described above have led to the problem statement of this research:
Moekotte currently does not have any evaluation methods for new market business opportunities and does not have many resources available for evaluation. This leaves management to rely on gut feelings, lowering the amount of consideration that goes into decisions on strategy and long-term planning.

1.4. Goal

The goal of this research is to provide Moekotte with an evaluation method that can be used to analyse new business opportunities based on opportunity attractiveness. This research will also add to Moekotte's long-term goal. By making decisions in a formal method, they can be made more thorough and tangible, potentially adding to long-term continuity of the organisation. One of the requirements of the model is that it has to be executable without spending large amounts of resources. This is done by limiting the amount of criteria that are evaluated in the model. Apart from being useful to Moekotte, it may also be interesting from an academic point of view to find out how

SMEs such as Moekotte can evaluate business opportunities. Other SMEs may use the new model to a lesser extent once it is finished. However, it is not the primary goal of this research to develop a model for business opportunity evaluation that applies to 'all' SMEs.

1.5. Research questions

Based on the research goal, the main research question is formulated as:
How can Moekotte evaluate their business opportunities with relatively limited resources (i.e. limited time and knowledge)?

This main research question is split up into smaller research questions. The first research question is based on the assumption that in order to evaluate a business opportunity, criteria for opportunity evaluation are needed. These criteria will form a basis for deciding attractiveness of business opportunities. A model for opportunity evaluation can then be built using these criteria as inputs. The amount of criteria included in the model will also have to be limited in order to make the analysis workable for SMEs such as Moekotte (i.e. this will allow companies to execute the analysis without requiring large amounts of resources). The first research question is therefore formulated as:
Which criteria for business opportunity evaluation should be included in a model of opportunity evaluation specific to Moekotte?

The evaluation criteria for business opportunity evaluation resulting from the first research question will subsequently be used for development of a model for opportunity evaluation. The second research question is thus:
How Moekotte evaluate their business opportunities with relatively limited resources (i.e. limited time and knowledge)?

1.6. Central themes

From the research questions, two relevant academic themes are deducted: business opportunities and Small-Medium Enterprises (SMEs). These topics are now discussed to gain some familiarity with them and to form a definitions which can be used in the research. Discussing these topics may furthermore provide boundaries, such as the aspects of business opportunities that can be analysed in a business opportunity evaluation method.

General definition of business opportunities

Business opportunities are defined by Ardichvili et al. as: "a chance to meet a market need (or interest or want) through a creative combination of resources to deliver superior value" (Ardichvili, Cardozo, & Ray, 2003, p. 108). Alternatively, an opportunity is defined in its most elemental form by Kirzner as "imprecisely-defined market need, or un- or under-employed resources or capabilities" (Kirzner, 1979, pp. 60-85). Although somewhat abstract, these definitions describes Moekotte's current business opportunity well. The company perceived that there is a market need for building automation systems and that they have capabilities (technical knowledge) that could fill this market need. However, the market need is not yet fully understood by the company. Dimensions such as end customers, product or services that can be offered, etc. are not yet clear for the company.

Business opportunities as strategies for diversification

Another method of describing business opportunities is along market and product dimensions. Ansoff (1957, p. 114) defines four paths that organisations may take in order to diversify their businesses: *market penetration* focusses on increasing sales but in doing so, does not change the current product-market strategy. This can occur by increasing sales to either existing or new customers. *Market development* is "a strategy in which the company attempts to adapt its present product lines … to new missions". An example of this strategy could be a company that manufactures cargo ships, which choses to converted their ships to fit passenger transportation. In *product development*, new products are created for already present markets. Finally, *diversification* is a strategy that moves away from current products and current markets.

Table 1: Product-market strategies for business growth alternatives

	Current market	New market
Current product	Market penetration	Market development
New product	Product development	Diversification

Adapted from Ansoff (1957, p. 114)

Business Opportunity definition in this research

Moekotte's potential new market

Business opportunities can be defined using the model of Ansoff. In this research, when organisations consider new markets, they are defined as business opportunities. The type of product (current or new) does not matter in the definition of this research.

The market that Moekotte currently considers has been exploited by other companies for a number of years, but is not (strongly) exploited in the geographical region that Moekotte is active in (northeast of the Netherlands). Required technology has been well developed for a number of years. This makes the building automation a 'market development' strategy. Moekotte's current potential new market falls within this research' definition of business opportunities using Ansoff's model.

It may be noticed that business opportunities and new markets are closely related subjects. As the model of Ansoff shows, only new markets are considered business opportunities in this research. In this research, a difference between these two terms is that a market is defined as a part of business opportunities. As will become clear in the literature review of this study, a business opportunity has a number of aspects which may be analysed to determine its attractiveness (resources, finances, etc.). The market in which an opportunity resides is just one of many factors that can be evaluated in a model for business opportunity evaluation.

Business opportunities as a process

Yet another method with which business opportunities may be described is as a number of events that an entrepreneur goes through during the process that spans recognition of opportunity to the start of a new organisation that exploits the opportunity. Ardichvili et al. (2003, pp. 109-113) define three sub-processes the entire total process: the search for opportunities (which is often referred to in academic literature as *opportunity recognition* (Sarasvathy, Dew, Velamuri, & Venkataraman, 2010, p. 8), opportunity evaluation and execution of opportunities (often referred to in academic literature as *New Product Development* or NPD). A model for business opportunity evaluation thus excludes opportunity recognition and new product development.

Definition of business opportunities

Taking all literature described above into consideration, business opportunities within this research are defined as:

An imprecisely-defined market demand, using either a new or existing product that is recognised by an organisation. The organisation considers the opportunity as interesting because some requirements for exploiting this demand are present within the company, such as necessary knowledge or market share.

Opportunity evaluation by small-medium enterprises

When evaluating business opportunities, criteria for business opportunity evaluation are taken into account. This research assumes that SMEs are interested in different criteria than larger organisations. For example, larger companies are likely to be more interested in financial returns, whereas SMEs are more interested in long-term survival and stability (as expressed by the problem owner). Banks, venture capitalists and business angels all prefer different criteria in new businesses Mason and Stark (2004). Because different types of investors are interested in different criteria in opportunity evaluation, it is hypothesised that different types of companies are also interested in other criteria in opportunity evaluation. Small medium enterprises are defined by European (and Dutch) law as having less than 250 employees and a turnover that smaller than €50 million (Verheugen, 2005). Moekotte falls within this definition. Another justification for making the evaluation model specific to SMEs is because they have relatively few resources available for business opportunity evaluation. This means that the evaluation method will have to be 'lean' and easily executable, which should be reflected in the size of the new model for opportunity evaluation.

1.7. Academic and practical relevance

Practical contribution

The practical contribution of this research lies in providing Moekotte with an evaluation method for analysing their current and future business opportunities. The company will be able to analyse opportunities in a more sophisticated method, simplifying long-term planning and strategy formulation. Decision making will also become more tangible, solving Moekotte's problem of making decisions based on gut feelings. The opportunity Moekotte is currently facing (the building automation industry) will also be analysed after the research questions are answered, further increasing practical contribution. With this information, Moekotte will have information on which to base a decision on their current business opportunity, but also a practical example on how to use the evaluation method in the future.

Academic literature on business opportunity evaluation

A first step in answering the main research question (*how can Moekotte evaluate their business opportunities?),* was analysing the academic field of opportunity evaluation and searching for any existing theories or models that may be used for this purpose. This will also assist in formulating the theoretical contribution of this research. A shortcoming observed in this academic field, is that it appears rather underdeveloped compared to the two closely related fields of *opportunity recognition* and *opportunity execution*. Not many articles are available that investigate the nature of opportunity evaluation. However, articles that investigate how entrepreneurs may recognise and execute their opportunities are available in larger numbers. This suspicion is confirmed by a number of authors including Keh, Foo, and Lim (2002) who state that "even though the entrepreneurship literature

places much emphasis on opportunity recognition, little is known about how entrepreneurs actually evaluate opportunities" (Keh et al., 2002, p. 125). Haynie, Shepherd, and McMullen (2009) note that opportunity recognition and execution have received considerable attention. "Largely ignored by scholars, however, are the processes associated with opportunity evaluation." (Haynie et al., 2009, p. 338). Practically usable models or criteria that organisations can use to evaluate business appear to be of low interest to researchers and are difficult to find.

There are some existing models for opportunity evaluation in academic literature. Shortcomings of these are firstly, that they are often exclusively focussed on financial criteria, which makes them less suitable for Moekotte because the company is primarily interested in long-term survival. Secondly, when used in practice, these models often re quire large amounts of time, which makes them less usable for SMEs such as Moekotte who have limited resources available for opportunity evaluation.

Theoretical contribution

It is the intent of this study to contribute to the academic field of *opportunity evaluation* by creating some insight in opportunity evaluation from the perspective of an SME. The research will investigate how Moekotte evaluates business opportunities and design an evaluation model out of this data. SMEs are considered important by the researcher, because in most countries, these type of companies account for over 90% of enterprises (World intellectual property organization, 2013). In the Netherlands, this number is even higher; 99% of all companies are small or medium, representing about 58% of turnover in the entire economy (MKB Servicedesk, 2013). A more thorough analysis of opportunity evaluation may contribute to the performance of SMEs, which in turn may have an impact on national and global economies. It may furthermore be of interest to researchers to see how SMEs such as Moekotte evaluate their business opportunities compared to other types of organisations, such as investors.

1.8. Thesis outline

The goal of this research is to develop a business opportunity evaluation model specific to Moekotte. The literature review will firstly investigate which models are already available in academic literature for business opportunity evaluation. Elements of these models that are useful in the new model are carried over to the new model. Furthermore, the literature review will analyse which criteria for business opportunity evaluation are available in academic literature that can be put into a new model. Finally, decision-making formats are discussed in the literature review. After the literature review, the methodology chapter will discuss which approaches are used to answer the research questions. Chapter four will discuss results of the research and analyses them. The two research questions will be discussed individually. The results chapter concludes with an overview of the newly designed model for business opportunity evaluation. Chapter five provides a reflection of the new model, which was based on a business opportunity that was analysed with the new model. Finally, in chapter six, a discussion of the research's' findings and conclusions are presented.

Chapter 2. Literature review

To answer the question of how businesses may evaluate their new business opportunities, the literature review is split up in three parts. Firstly, already existing models for business opportunity evaluation are discussed. Although these are found to be less suited for SMEs, they may contain elements that are usable in the development of a new model. Next, two necessary 'ingredients' for development of the new opportunity evaluation model are reviewed in the literature review; criteria for opportunity evaluation and a format or model for decision-making. These results will be used as inputs for developing the new business evaluation model. The academic search machines that were used for the literature study are Scopus and Google Scholar.

2.1. Models for business opportunity evaluation

In the academic relevance of this research, it was argued that existing business opportunity evaluation methods are not well suited for the purposes of SMEs: they require heavy resources for their execution and are often mainly focussed on purely financial criteria. It may nonetheless be useful to take a closer look at existing models to see what elements may be re-used in the development of a new model. For searching these models for business opportunity evaluation, search terms used in academic search engines are; 'business evaluation', 'business opportunity evaluation', 'evaluation of new businesses', 'market entry evaluation' and 'market opportunity attractiveness'.

2.1.1. The Market Opportunity Analysis

A highly practical model that can be used for analysing business opportunities is the *market opportunity analysis* model (MOA) (Woodruff & Gardial, 1996, pp. 32-35). It consists of four analytical phases; an analysis of the macro-environment, development of a definition of end-users, an analysis of the nature and dynamics of interactions between participants in the market and finally, evaluation of the opportunity itself.

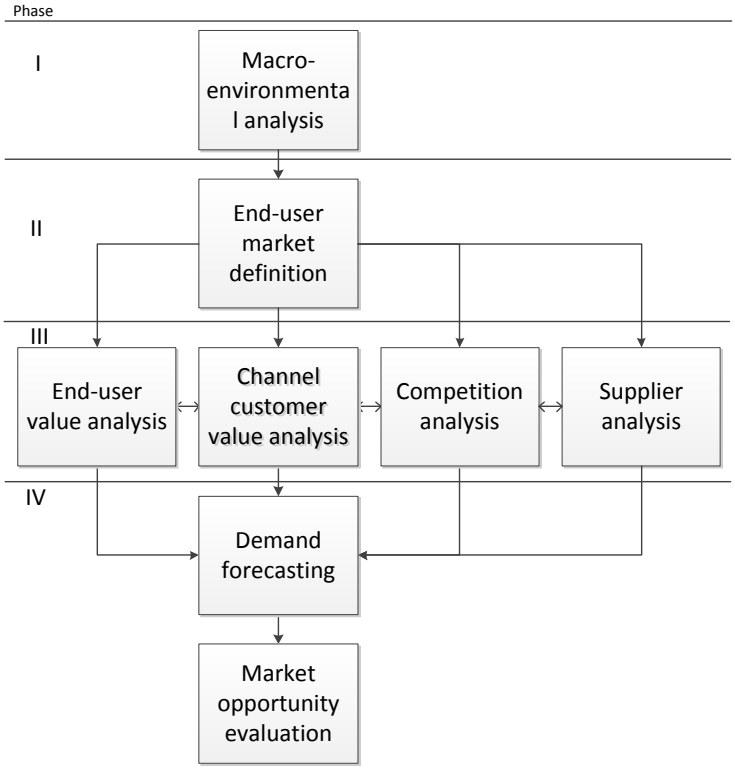

Figure 1: The Market Opportunity Analysis framework. Reprinted from Woodruff and Gardial (1996, p. 33)

Although phases of the market opportunity analysis are clear, variables that are actually evaluated within every phase are not defined. Fortunately, the model is used in practice by Golicic et al. (2003), who conduct a MOA for a company active in air cargo operations. Their example adds a lot of clarity to the model, because it shows what actual aspects are analysed of business opportunities when the model is used in practice. The individual stages will now be discussed, combining findings of both articles.

Phase one; environmental analysis

The first phase, called the environmental analysis, conducts a macro analysis of the potential market opportunity. The authors are not so clear on what is exactly done in this phase, but its purpose is to help managers "learn about how market opportunity is being shaped by economic, cultural, social, technological, governmental and natural forces" (Woodruff & Gardial, 1996, p. 32). This step is comparable to the often used DESTEP model, which conducts a quick-scan of macro factors in the categories demographics, economics, social-cultural, technology, ecology and politics (Oostra & Slaa, 2006).

Phase two; market definition

In the second phase, market(s) and major customers with specific opportunities are identified. The opportunity is also segmented into a product-market structure. Woodruff and Gardial argue that this phase is one of the most relevant ones, since "all other MOA phases follow from it" (Woodruff & Gardial, 1996, p. 33). The scope of the next phases thus depend on this phase. For example, the competition analysis that is part of the following phase will look very different depending on what market is defined.

Phase three; analysing participants of the market

The third phase analyses four participants of the defined industry; end users, customers that are not end users (usually distributors), competitors and suppliers. The goal here is to "develop descriptive profiles to understand customers, competitors and suppliers within the markets defined in step two" (Golicic et al., 2003, p. 7). Both Woodruff & Gardial and Golicic et al. define some variables of these participants that are measured for the analysis. The categories 'customers and end users' are defined by Woodruff & Gardial as having the measurable criteria; 'sought value', 'satisfaction with sought value', the 'relation of satisfaction to behaviour' (meaning positive word of mouth or loyalty). Golicic et al. add 'number of projects on a yearly basis' and 'type and size of project' to the evaluated factors in this phase. Woodruff & Gardial further state that competitors may be analysed by evaluating the value delivered by competitors in order to find their strengths and weaknesses. Golicic et al. describe the name of competitors, active markets they are in, market share, competitors' geographical location and their activities and assets. Regarding suppliers, Woodruff & Gardial describe no factors that may be analysed, whereas Golicic et al. analyse suppliers by measuring the extent to which the supplier product range is narrow or broad and how well they meet market needs in the new opportunity's market. Woodruff & Gardial make special mention of the distinction between customers and end users. They state that "market opportunity originates with end users because it is their needs that create demand" (Woodruff & Gardial, 1996, p. 31). Customers, on the other hand, are defined as trade customers, such as retailers, distributors, wholesalers, etc.

Phase four; forecasting demand and opportunity evaluation

The market demand forecasting and opportunity evaluation phase analyses potential future market demand and market share. Woodruff & Gardial state that evaluation of the market requires forecasting future demand of the identified markets. Revenue potential is described by the authors as one of the most important criterion for companies when judging the opportunities.

Usability of the Market Opportunity Analysis

A major advantage of this method is that it is highly practical and clear; concrete steps are defined that are executable by analysts or companies. A limitation of this model is that in order to make a thorough analysis of a business opportunity, organisations will need to allocate quite some resources to the process. This can be concluded from Golicic et al., who analyse a business opportunity using three researchers (Golicic et al., 2003, p. 8). SMEs do not always have a marketing department or product managers, making the model less suitable for them. Nonetheless, this model is interesting because it may serve as a basis for a new opportunity evaluation model. The phases that are described in the MOA are considered a good order for evaluation and can be used in the new model.

2.1.2. The Strategy-technology Firm Fit Audit

Another available method for business opportunity evaluation is the Strategy-Technology Firm Fit Audit. This model, developed by Walsh and Linton (2011, pp. 199-213), compares already existing and new products and services of an organisation. The researcher considers the fit between new and existing products and services as a valid aspect of opportunity evaluation, making this model relevant to this research.

The strategy-technology firm fit audit analyses four 'tiers' describing aspects of products and services and evaluates how well they fit with each other. The assumption is that the better the products and services fit with each other, the more synergy can be obtained from them in the organisation. The models' four tiers are: general managerial capabilities, specialised managerial capabilities, generic engineering skills and specific engineering skills. In the general managerial capabilities tier, the type of product or service is evaluated, followed by a more detailed analysis of this offering type. The second tier, specialised managerial capabilities, evaluates 'managerial emphasis', 'complexity', 'technological maturity', 'type of innovation' and the type of market demand (technology push or market pull).

Table 2: Managerial capabilities in the strategy-technology firm fit audit.

Categories	Product / service 1	Product / service 2	Etc.
Tier I – generic managerial capabilities			
Offering type			
Physical product			
Service product			
After sales service			
Physical products			
Materials			
Fabrication and assembly			
Service products / after sales service			
Knowledge embedded (knowledge resides within system)			
Knowledge based (knowledge resides within service provider)			
Knowledge extracted (knowledge resides within user of service)			
Tier II – specialised managerial capabilities			
Managerial emphasis			
Operations			
Technological development			
Complexity			
Few components or processes			
Moderate number of components or processes			
Many components or processes			
Technology maturity			
Type of innovation			
Regular			
Niche Creation			
Revolutionary			
Architectural			
Technology push/market pull			

Adapted from Walsh and Linton (2011, p. 201)

The third and fourth tiers analyse generic and specific engineering skills. These refer to engineering skills necessary within a certain industry. Examples of such skills are metalworking, software engineering, etc.. Because these differ in industries, the model allows for the user to choose these necessary skills.

Table 3: Technological competencies in the strategy-technology firm fit audit.

Categories	Product / service 1	Product / service 2	Etc.
Tier III – generic engineering skills			
(criteria differ in every industry)			
Tier IV – specific engineering skills			
(criteria differ in every industry)			

Adapted from Walsh and Linton (2011, p. 202)

Usability of the Strategy-Technology Firm Fit Audit

Although this model does not evaluate business opportunities directly, it can be used to see how new products and services relate to existing ones, something which is part of business opportunities. When developing a new model for opportunity evaluation, The Strategy-Technology Firm Fit Audit can be considered for inclusion.

2.1.3. Linking existing models to development of a new model for opportunity evaluation

As discussed in the previous paragraphs, the *Market Opportunity Analysis* and the *Strategy-technology Firm Fit Audit* are useful models, but they are less suited for SMEs. This is due to their focus on financial criteria and because they require large amounts of time for their operation, something SMEs may not have available. Some parts of the existing models can however be used as a input for the development of an evaluation method specific to SMEs.

The phases described in the *Market Opportunity Analysis* are a considered by the researcher as a good basis for a new model because they clearly define the scope of phases in an analysis. Phases are ordered into phases of macro, then meso, then micro analysis. This order is logical because the scope of later phases depends on earlier ones (Woodruff & Gardial, 1996, p. 33). For example, if a market opportunity analysis is abandoned because the macro level is deemed not suitable for the opportunity to be successful, it makes no sense to continue the analysis on meso and micro levels. The Strategy-technology Firm Fit Audit can be included in total in a new opportunity evaluation model. This model is included because, the level of fit of new and existing products is considered by the researcher as a valuable addition to the evaluation of business opportunities.

2.2. Criteria for business opportunity evaluation

The found existing models for business opportunity evaluation have some limitations; they require many resources when used and they are mostly focussed on financial criteria. In order to develop a model for opportunity evaluation that solves these shortcomings, the researcher assumes that criteria are necessary that can decide the attractiveness of business opportunities. Academic literature is now discussed which describes how different types of organisations analyse their opportunities. Once criteria for business opportunity evaluation are known, they can be used as an input for the design of the new model. Academic search terms used in search engines for this subject are; ‘business evaluation criteria’, ‘market evaluation, ‘evaluating new markets’, ‘selecting new markets’, market entry criteria’, ‘opportunity evaluation’ and ‘market analysis’.

Opportunity evaluation in academic literature

Traditionally, two perspectives in academic literature investigate the link between strategic positions companies take and firm performance; the competitive strategy view and the resource-based view (Spanos & Lioukas, 2001). In the competitive strategy paradigm, firm performance mainly depends on market structure and how well organisations can strategically place themselves within that structure (Fahy & Hooley, 2002). In the resource-based view, the heterogeneity of resources determines firm performance (Barney, 1991). Because the competitive strategy view analyses factors inside the firm and the resource-based view analyses factors outside the firm, they are often referred to as the inside-out and outside-in views. The two perspectives are related to this research; business opportunities can be evaluated by analysing the firms strategic fit in new markets and by analysing the resources required in a market. As will become clear in this part of the literature review, many of

the evaluation criteria that analyse business opportunities can be categorised within one of the two perspectives.

Although these two academic areas are closely related to opportunity evaluation, there may be more aspects of business opportunities than the strategic placement of a company in an industry and the extent to which a company's resources match those required in the industry. Furthermore, a finding that was explained in the academic relevance of this research, is that opportunity evaluation by companies and entrepreneurs is not researched very extensively. Criteria for opportunity evaluation thus have to be obtained in other academic areas in which business opportunities are also evaluated. Three such academic areas were found; investors evaluating new businesses, opportunity evaluation by successful companies and evaluation of new products or services of already existing companies. These three academic areas will now be discussed individually and searched for concrete criteria used in the academic areas that evaluate business opportunities. Afterwards, an overview will be presented that discusses all found criteria for opportunity evaluation.

2.2.1. Business opportunity evaluation by investors

The investors' perspective of opportunity evaluation is very related to opportunity evaluation by companies, mainly because the process of evaluating investments can be considered very similar to that of opportunity evaluation by companies. Furthermore, the goals of companies and investors are the same; to make the company exploit new business opportunities and generate profits out of those. Another advantage of the investors' evaluation of opportunities, is that they evaluate business opportunities on a regular basis. This gives them more experience in evaluation than most companies, who likely consider new business opportunities less often. Finally, investors often are more critical of new business opportunities (De Meza & Southey, 1996), which the researcher expects will increase thoroughness of the analysis of new opportunities. A disadvantage of the investors' perspective of opportunity evaluation is that the weight of certain aspects for evaluation may be in conflict with that of companies. If this is the case, it will become apparent later in this research when answering the research question of which criteria companies use to evaluate their business opportunities.

Opportunity evaluation criteria used by venture capitalists

Investment criteria by venture capitalists are investigated by MacMillan et al. (1986). Criteria they include in their research are located within the categories 'market', 'finance' and 'product or service'. Among the five criteria that they found were most used by venture capitalists are 'entrepreneur's capability of sustained intense effort', 'entrepreneur's familiarity with the market', 'entrepreneur's demonstrated leadership ability in the past', 'market growth rate' and 'financial returns in the first 5-10 years'. (MacMillan et al., 1986). The authors conclude that venture capitalists often mostly focus on qualities of the entrepreneur (MacMillan et al., 1986, p. 119). They do not discuss the perspective of companies in this investment process.

Differences in opportunity evaluation by bankers, venture capitalists and business angels

Other research that includes opportunity evaluation criteria by investors, is that of Mason and stark (2004). These authors investigate the differences between three groups of investors; bankers, venture capitalists and business angels. Criteria found in their research can be placed within the categories 'market', 'finances', 'product or service', 'resources' and 'experience of managers or

entrepreneurs'. Their main findings are that bankers "stress the financial aspects of proposals and give little emphasis to market, entrepreneur or other issues" (Mason & Stark, 2004, p. 227). Venture capitalists and business angels are more focussed on market and financial criteria. Another distinction is that business angels focus more on 'investor fit', which refers to the fit between the new investment and investments already in their portfolio. They investigate this by evaluating dimensions such as the markets in which investments reside. This criterion is less interesting for companies who evaluate their business opportunities as it only applies to financial investors.

2.2.2. Business opportunity evaluation by 'successful' companies

It is interesting to know how successful companies evaluate their business opportunities. Academic literature that investigates successful companies often mentions criteria that can be considered part of the company's business opportunity evaluation. In this research, the assumption is made that companies have already successfully evaluated business opportunities in order to reach high performance. A possible disadvantage of criteria within this category is that they may be focussed on aspects that do not have anything to do with business opportunities, but rather with other aspects of the company itself, such as the organisation type, etc.. These criteria will not be included into the results of this literature study.

Criteria for new venture success: meta-analysis

Song, Podoynitsyna, Van Der Bij, and Halman (2008) investigate criteria that influence new venture success. The article does not define firm success, as it is a meta-analysis and thus depends on other researcher's definition of success. The factors discussed in the paper show some strong similarities with criteria that might be used for opportunity evaluation; included categories are 'market and opportunity', 'entrepreneurial team' and 'resources'. Some criteria for evaluation appear to overlap strongly with criteria found in the literature review so far, such as 'product's market potential' (similar to 'demonstrated market acceptance' by MacMillan et al., described earlier). Although the results of the research indicate that only eight factors appeared to be success factors for new ventures that are truly homogenous (i.e. apply in all situations for all sorts of companies), all criteria discussed in this research are considered relevant for the current research.

Successful high-tech new ventures

Kakati (2003) researches criteria that influence high-tech new ventures performance. Although this is investigated by interviewing venture capitalists, the units of analysis are companies (venture capitalists are asked to comment on their most successful ventures). A great advantage of the article for the purposes of this research, is that the author provides a very comprehensive list of criteria over six groups ('characteristics of entrepreneurs', 'resource-based capability', 'competitive strategy', 'product characteristics', 'market characteristics', 'financial considerations' and 'performance measures'). Again, a great deal of overlap was found with discussed earlier literature, likely because Kakati included the criteria of MacMillan et al. (1986).

2.2.3. Evaluation of new products by companies

Apart from the manner in which investors and successful companies evaluate their market opportunities, the manner in which companies judge their new products might also lead to evaluation criteria. Although the present research is not interested in the process of new product development (NPD), the academic area has some similarities with business opportunity evaluation.

Much of the research discussed so far includes criteria that investigate the product or service that a company will be exploiting in their new business. The product or service thus should be included in evaluation of new business opportunities.

Opportunity evaluation by companies is assumed to be most closely related to evaluation by SMEs, as they represent the same stakeholder in the evaluation process. A disadvantage of the perspective of companies is that unlike investors, companies are likely to have less experience in judging opportunities. Furthermore, companies are often too optimistic about their own chances (De Meza & Southey, 1996, p. 375).

Evaluation criteria in New Product Development

Hart et al investigate evaluation criteria for new product development. They look into how companies evaluate their potential new products in so called stage-gate process.

More specifically, they do this in the context of stage-gate models; investigated evaluation criteria come from gates (evaluation points in the product- development process) within new product development. Investigated companies are located in the Netherlands, increasing relevance to this research. The criteria discussed in the paper can be placed in the categories 'market', 'product or service' and 'forecasts'. Especially the group 'forecasts' is of interest to the current research, as criteria from the market and product or service groups strongly overlap with already found criteria.

2.2.4. Overview: criteria for opportunity evaluation as used by different types of organisations

Three diverse perspectives of business opportunity evaluation were discussed in this chapter. An overview will now be constructed which discusses criteria for opportunity evaluation used by investors, successful companies and companies evaluating new products. The criteria that were described in the above discussed literature can be placed within the categories; market, finances, product or service, resources, managers or entrepreneurs leading the new venture or subsidiary and forecasts. These categories are now discussed individually, explaining how the three types of different stakeholders evaluate that aspect of business opportunities.

Evaluating the market of a new business opportunity

Criteria found in literature that are used for evaluating aspects of the market the market in which business opportunities reside are; market growth, the extent to which the venture will stimulate the market, market familiarity, market intensity, internationalisation of the market, the extent to which the scope of the market is related to already existing markets, critical success factors in the market set by dominant players in the market and the extent to which marketing is likely to be successful.

The criteria discussed here seem to provide a diverse analysis of how attractive a market is for companies. The criteria are somewhat related to Schumpeter's classification of industries that evaluates how strongly developed a market is. So-called Mark I industries are 'easier' to enter; many opportunities to innovate are available, there are no entrance barriers yet and there are no strong research and development (R&D) costs required (Malerba & Orsenigo, 1997, pp. 85-86). Mark II industries are the opposite; they contain many competitors that have put entrance barriers in place

to keep competitors out. Furthermore, criteria from the market category for opportunity evaluation are very closely related to the competitive strategy or 'outside in' view. This view assumes that firm performance depends on environmental factors and how well organisations strategically place themselves within markets (Kim, Song, & Koo, 2008, p. 204). Business opportunity evaluation depends on more than just market evaluation criteria (as will be discussed in the following paragraphs), but market or industry-specific factors are a major force in determining the attractiveness of a business opportunity.

Evaluating finances of a new business opportunity

Criteria found in literature which analyse the financial aspect of business opportunities are; financial returns within 5-10 years, whether or not possible investments in the new opportunity must be liquid, whether or not investments are necessary in the new opportunity and the number of investments, the extent to which the organisation currently has resources available for investing, the financial structure of a possible new venture or part of the organisation, likely returns and exit route possibilities.

In this research, it was assumed that SMEs such as Moekotte are less interested in financial criteria, rather than long-term survival and continuity. This will become clear in a later stage of the research. Finances of a business opportunity may be considered highly relevant from an investor point of view. However, this aspect is also important for companies evaluating their opportunities. Required financial investments, current available finances and potential return rates are some examples of factors that companies may evaluate in their new business opportunities.

Evaluating the product or service of a new business opportunity

In the product or service category, business opportunity analysts evaluate the criteria; whether or not the product or service is proprietary or can be protected, the product's market potential, whether the product already has a functioning prototype, the extent to which the product is innovative, whether or not the product is introduced over time, the product's quality, product time-to-market, product uniqueness, technical feasibility of the product or service, the extent to which issues associated with production process are handled, uniqueness of the product or service, quality and performance of the product or service, market potential of the product service and the extent to which the product or service has a demonstrated market need.

These criteria offer an evaluation aspects of product and service specific. The downside of trying to develop a generic evaluation method for products or services is that it cannot evaluate very specific aspects of products or services. For example, a product manager in a software company might evaluate the speed and performance of a product, whereas this criterion might be not interesting for product managers in the electrical engineering. A advantage of evaluating products or services is that they often can be evaluated relatively well by companies. Often, business opportunities are considered by companies because they already have similar products or services. Product and service evaluation can be considered from two perspectives; by evaluating aspects of products or services (similar to Hart, Hultink, Tzokas, and Commandeur (2003)) or by looking how well products and services match the criteria set by the resource-based view; they have to be valuable, rare, imperfectly imitable and non-substitutable (Barney, 1991, p. 105).

Evaluating required resources in business opportunities

Criteria that evaluate required resources for starting the exploitation of a new business opportunity are; supply chain integration, research & design alliances, managerial, technical and marketing capabilities, the extent to which the new business opportunity is related to existing opportunities and the value of the business.

Although it is possible to describe almost all criteria for opportunity evaluation as resources, criteria discussed here were explicitly described as resources in their original articles. Barney states that in order for a resource to be effective in creating firm competitiveness, it has to be "valuable, in the sense that it exploit opportunities and/or neutralizes threats in a firm's environment", "rare among a firm's current and potential competition", not imitable and there must be no "strategically equivalent substitutes" (Barney, 1991, pp. 105 - 106) The criteria discussed in this paragraph can all be measured by testing these conditions.

Evaluating managers or entrepreneurs leading the organisation in the new business opportunity

The manager or entrepreneur leading the new venture or subsidiary is evaluated by both investors and companies investigating new business opportunities. Reviewed aspects are the background, experience and track-record of entrepreneur, the range of skills or functions of the management team and the size of the founding team.

Although this category for opportunity evaluation contains few criteria, it is an important aspect for both companies and investors evaluating business opportunities. Evaluation of candidates for leadership can be very extensive, as this is an academic field in itself. However, the business opportunity evaluation model that is constructed in this research will be specifically designed to be executable without using large amounts of time or requiring substantial knowledge. Therefore, a limited evaluation of the manager or entrepreneur leading the new organisation is acceptable within the scope of this research.

Evaluating forecasts of a new business opportunity

Criteria evaluating forecasts of business opportunities are; customer acceptance, customer satisfaction, sales objectives, sales growth, market share, break-even time, profit objectives and internal rate of return (IRR/ROI).

Although forecasting may be difficult for organisations, it is important to consider the future attractiveness of the analysed business opportunity. The purpose of forecasts is not only to say something useful about the future, but it also forces analysts (SMEs) to think about later stages of the opportunity exploitation process. Forecasts do not necessary have to be very accurate, as long as they give an idea of major forces that shape the future attractiveness of their business opportunities.

Other criteria for opportunity evaluation

Two factors that could not be grouped in any of the above described categories are the overall quality of a business plan and the overall concept and strategy of the new business exploiting the new opportunity. These criteria both are often evaluated by investors, although they can also be interesting for companies. They will be included in the total list of criteria so that their inclusion into a new model for opportunity evaluation may be evaluated at a later point of the research.

Conclusion

This part of the literature review discussed opportunity evaluation criteria that will provide inputs for the development of a new model for opportunity evaluation. Three perspectives for opportunity evaluation were discussed; investors, successful companies and analysis of products and services by companies during NPD. This resulted in a list of criteria for opportunity evaluation that is both comprehensive and diverse and analyses a number of aspects of business opportunities (see Figure 2). The found criteria in this literature review will be used as input for the first research question, which investigates which criteria are important to SMEs in opportunity evaluation. An interesting finding is that many of the discussed articles show a strong overlap in evaluation criteria. For example; "the market enjoys a significant growth rate" (Song et al., 2008, p. 12), "the target market enjoys a significant growth rate" (MacMillan et al., 1986, p. 121) and "market enjoys a significant growth rate" (Kakati, 2003, p. 449) are all very similar criteria, albeit with a somewhat different formulation. No two articles discuss exactly the same criteria, but there is a at least a small level of agreement among researchers regarding the criteria that should be evaluated in new business opportunities.

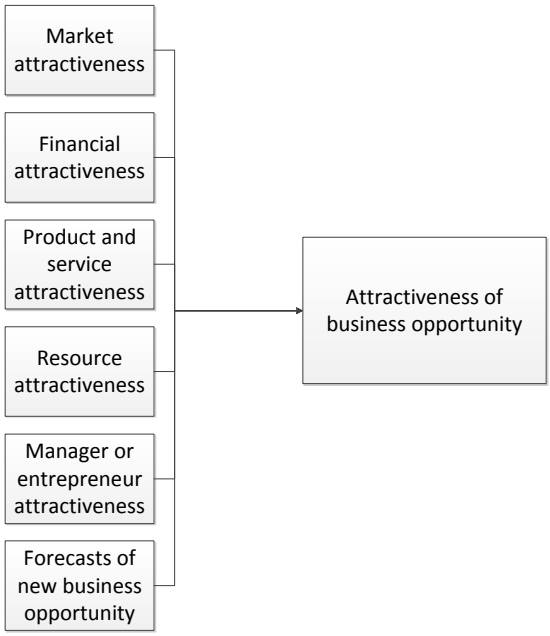

Figure 2: Categories containing factors that influence attractiveness of business opportunities

The categories in which criteria for opportunity evaluation reside also provide a first hint of an answer to the main research question (*how can SMEs evaluate their business opportunities?*). Possible aspects of new opportunities that are evaluated by investors, successful companies and companies evaluating their new products or services are; the market of new opportunities, financial aspects, the product or service of the opportunity, required resources for executing the opportunity, the manager or entrepreneur leading the new organisation or subsidiary and finally, forecasts of the new opportunity (Hart et al., 2003; Kakati, 2003; MacMillan et al., 1986; Mason & Stark, 2004; Song et al., 2008). In Appendix 1: Evaluation criteria, the exact origin of criteria from its article are listed.

2.3. Format of a decision model

The goal of this research is to develop an evaluation model for business opportunities. This raises the question of how a decision-making model should be formulated. This will determine how decisions are made in the model and what layout of the model will be. Another ingredient necessary for the development of a model for opportunity evaluation is thus a format for decision-making. Search terms used in academic search engines on this subject are; 'decision models', 'formats for decision making models' and 'decision making'.

Requirements of a decision model

There are many possible ways in which a model for decision-making can be formulated. To make an initial selection of these possibilities, two requirements were formulated in this research. Firstly, the format of an evaluation model should be based on rational decision-making. This is because one of the demands of Moekotte is that a method for evaluation should use rationalised thinking and does not rely on gut feelings (as this is a problem the company is trying to resolve). Secondly, it should be easy to understand and the company has to be already somewhat familiar with the format. Based on these demands, three possible formats for decision-making were found in academic literature: stage-gate models, decision matrices and decision trees.

Stage-gate

Stage-gate process are defined as "a conceptual and operational map for moving new product projects from idea to launch and beyond" (Cooper, 2008, p. 214). In stages, project teams undertake work, obtain information and do subsequent data integration and analysis. Gates are where go or kill decisions are made on whether to continue investing in the project (Cooper, 2008, p. 214). Gates need to have 'teeth' and contain operationalised criteria. A gate results in a concrete step; 'redesign', 'kill', or 'continue to next stage' (Cooper, 2009, p. 48). Cooper states that stage-gate models have traditionally been used mostly in new product development (NPD) processes, but moving beyond the traditional model, stage-gate models have more recently evolved to more 'idea-to-launch systems' (Cooper, 2008, p. 214), indicating they can be used for more than just NPD.

Once stages and gates are created in a stage-gate model, it is possible to design scorecards. This is a method to operationalise factors located in gates. These factors then become input for managers to make go or kill decisions (Cooper, 2008, p. 214). Criteria in the scorecard will be judged both on objective and subjective sources and given a score. Beforehand, the designer of the model sets a minimum score for every criterion in every gate (Cooper, 2009, p. 51). The minimum level of criteria depends on the level of risk the analyst is willing to accept. In case multiple options are being analysed, no minimum score needs to be defined. The model then becomes a method of prioritising or ordering of projects (Cooper, 2009, p. 51). If an opportunity passes all minimum scores in a gates, the opportunity advances to the next stage. When all gates are passed, the analysed project is judged to be acceptable.

Decision matrices

Another considered format for decision-making is the decision matrix. In this model, a table is designed in which columns contain criteria for evaluation and rows contain the possible options that are evaluated. A great advantage of this model is its simplicity. Another advantage is that the criteria in the model can be concrete and rational. However, a disadvantage of this model is that it does not

allow for the evaluation of one single possibility; the model only allows for comparison between multiple cases. Decision matrices also do not allow for evaluation over time. It is assumed that this situation may occur when evaluating business opportunities.

Decision trees

Decision trees are models in which decisions are formulated in a tree-like structure. Nodes represent decision points in which something is analysed, branches represent results of analysis. The analyst works through the analysis, lower down the tree, until there are no more decisions to make. Possible outcomes of decision trees are the 'end nodes' of a decision tree. The main disadvantage of the decision tree format is that, like decision matrices, do not allow for evaluation of a single possibility.

2.4. Conclusions of the literature review

The literature review has discussed a number of ingredients necessary for the development of a model for business opportunity evaluation.

The central themes paragraph provided a foundation for the literature review. Articles by Ardichvili, Cardozo, & Ray and Kirzner were used to develop a definition of business opportunities. To this definition, Ansoff's strategies for diversification were added. Ardichvili discusses how organisations can use different strategies to expand their business; through new markets or new products. When company consider entering new markets, it is considered a business opportunity in this research. Moekotte's potential new market chance was tested to these models and appears to be fitting within these theories. Finally, a definition for business opportunities was developed using all these theories; *An imprecisely-defined market demand, using either a new or existing product that is recognised by an organisation. The organisation considers the opportunity as interesting because some requirements for exploiting this demand are present within the company, such as necessary knowledge or market share.*

The literature review then continued to analyse which models are available for analysing the attractiveness of business opportunities. Two major models were found; the *Market Opportunity Analysis (MOA)* and *The Strategy-Technology Frim Fit Audit*. However, these models are limited in that they are mostly focussed on financial criteria and require much time for their operation. Nonetheless, certain parts of them can be carried over into development of a new model for opportunity evaluation: the phases in the MOA are a good principle because they clearly define a scope during the analysis of a business opportunity. The order of these phases will also be carried over (macro, meso then micro order). This is because later phases in the analysis will depend on earlier ones. For example, when the macro environment is considered unsuitable for a business opportunity, it is useless to analyse the micro environment. The *Strategy-Technology Firm Fit* will be entirely incorporated into the new model for opportunity evaluation. The researcher considers the fit between technology and strategy an important part when evaluating business opportunities, among the other factors found in the literature study.

The literature review then continued to analyse which criteria can be used for judging attractiveness of a business opportunity. This was done by analysing business opportunity evaluation from the perspectives of three types of organisations; investors analysing business opportunities, successful companies' evaluation of business opportunities, and evaluation of new products or services in new

the New Product Development (NPD) process. This part of the literature review resulted in 62 criteria, spread over 6 groups; market, finance, product or service, resources, manager or entrepreneur and forecasts. This list will be used as input for the first research question, which investigates which of these criteria should be included into the development of a new model for opportunity evaluation.

As the new model for opportunity evaluation will need to advice companies on whether or not to execute the analysed business opportunity, a format for decision-making is also necessary. The decision making model has to be rational an needs to have some familiarity within the company. Based on these demands, three formats for decision-making were found in academic literature; stage-gate models, decision matrices and decision trees. These formats were explained and their advantages and disadvantages were discussed. When designing the new model for opportunity evaluation, the most fitting format will be chosen and used as a format of the new model.

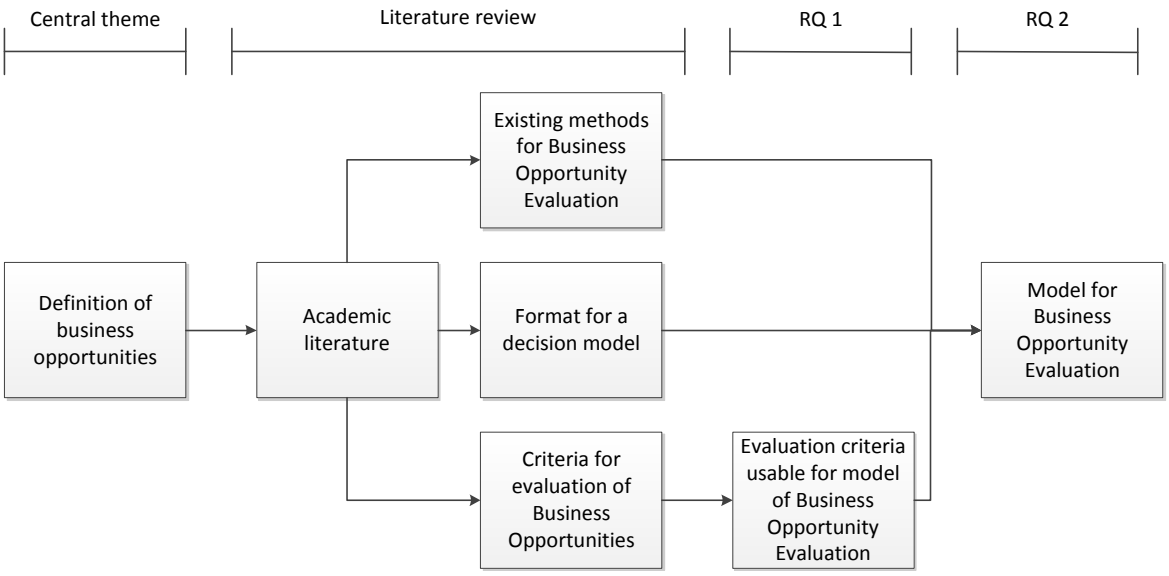

Figure 3: Elements resulting from the literature review

Chapter 3. Methodology

This chapter will discuss the methodology used for answering the main research question: How can Moekotte evaluate their business opportunities with relatively limited resources (i.e. limited time, knowledge, etc.)? To answer that question, the literature review investigated which criteria might be used in evaluation of business opportunities. The research will subsequently analyse which of these criteria should be included into a model for opportunity evaluation that is specific to SMEs. After answering this question, the new business opportunity evaluation model will be designed.

3.1. Research design

Selection of criteria for a new model for opportunity evaluation

The first step in developing a model for opportunity evaluation specific to SMEs, is finding out which opportunity evaluation criteria should be included in the new model. The literature review provided a list of possible opportunity evaluation criteria available for inclusion. The first research question will subsequently investigate which of these criteria should be included into the new model. To examine this, a SME will need to be analysed that has experience in evaluating business opportunities.

For these purposes, Moekotte was chosen as unit of analysis. The company is considered to be a type of expert, as they have evaluated a number of business opportunities in their existence. Within the company, a number of employees have experience in opportunity evaluation. Another reason for analysing Moekotte is that the final model is not necessarily suited for 'all' SME. Instead, the model is being developed specifically for the company. For a larger generalisability to other SMEs than Moekotte, it would probably be more fitting to conduct statistical research and analyse multiple companies. However, the limited time span of this research rendered this option unfeasible.

Design of a business opportunity evaluation model

Once criteria are known that are suitable for inclusion into a new model for opportunity evaluation, the design process of the model can start. Three elements make up the foundation of the new model. Firstly, the evaluation criteria that were found suitable for opportunity evaluation resulting from the first research question will be included. Secondly, literature describing a decision-making format is used as a format for the new model. Third, elements from already existing opportunity evaluation models discussed in literature will be used as a basis for the new model. After the model is designed, criteria in the model will be operationalised. Finally, minimum scores for the criteria included in the model will be set.

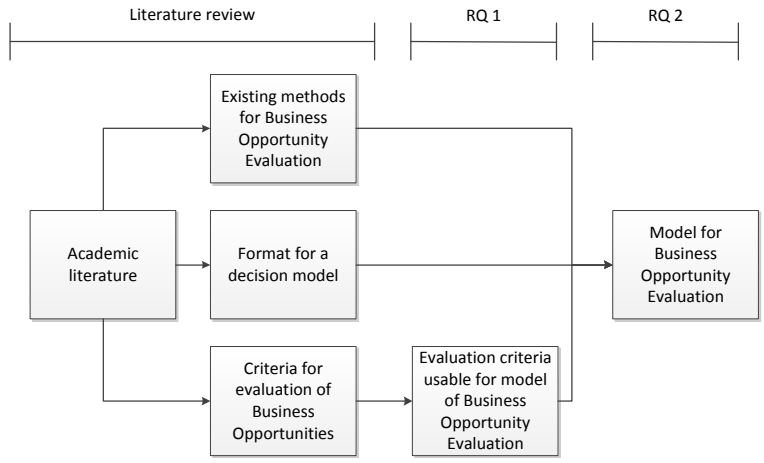

Figure 4: Research design

Reflection of the new model

After designing a model for business opportunity evaluation, it may be valuable to test this model in a practical setting. This may function as an example for future users of the model and can provide insight into what information sources may be used during the evaluation. It can also serve as a reflection of which parts of the model work well in practice and which do not. Therefore, after the development of the model is complete, the model will be used in a practical setting which analyses a current business opportunity of Moekotte.

3.2. Data collection

The first research question examines which criteria are suited for the inclusion of an opportunity evaluation model. The units of observation will have to be a type of expert in opportunity evaluation; they will need to have a number of years of experience in evaluating business opportunities. The units of observation that are chosen for this purpose are three of Moekotte's managers: the managing director of the Moekotte group, the chief executive officer (CEO) and chief technical officer (CTO) of the Moekotte Enschede subsidiary. All three employees of the company have management experience of well over 20 years, providing them with some experience in opportunity evaluation. The managing director and CEO decide the long- and short-term direction of the company. Part of this is analysing business opportunities. The CTO decides on products that are included or excluded in the company. These three managers thus provide diverse inputs for opportunity evaluation. Diversity adds to the completeness of the measurement of a population (Verschuren & Doorewaard, 2007, p. 184). Another reason for interviewing these people is that they are part of the same group. This means that, compared to analysing multiple organisations, company-variables that may have influence on the evaluation of business opportunities will more similar. Another reason for interviewing these people is that previous to the interviews, they had shown a genuinely strong interest in the subject. As Moekotte currently is considering a new market, business opportunity evaluation is a topic that they have likely given some thought. This increases their willingness to be interviewed, increasing feasibility of the research.

Research method

To investigate which business opportunity evaluation criteria are important to Moekotte's management, semi-structured interviews were chosen as method of data collection. Semi-structured interviews were chosen as method of analysis, mainly because the units of analysis (Moekotte's management) consists of a small number of people (15). This means that qualitative research is more feasible and better suited for this population's size (Babbie, 2010, p. 231). Additionally, open-ended interviews allow for dialog, as opposed to standardised questions (Babbie, 2010, p. 231). This may provide interesting insights into why certain criteria are experienced as important to the interviewees.

Structure of interview for obtaining criteria for business opportunity evaluation

During the interview, categories of business opportunity evaluation criteria (based on the literature review) are described to the interviewees. They then are asked to describe criteria within these groups they find important. The categories in which evaluation criteria are placed thus form the structure of the interview. When all categories are discussed, interviewees will be asked whether they know of any criteria that did not fit in discussed categories. These factors are categorised as

'added' to the literature review, as they did not show up in the initial literature review. Audio of the interviews will be recorded.

Designing a model for Opportunity Evaluation

In the second research question, the opportunity evaluation model is designed. No data collection takes place. In this phase, three elements will form the basis for the new model; criteria found to be important to Moekotte, already existing opportunity evaluation models (from the literature review) and a format for developing decision-making models (from the literature review).

3.3. Data analysis

The first research question conducts interviews that investigate market evaluation criteria important to Moekotte. Afterwards, records of the interview will be analysed to judge the importance of criteria that were discussed. Because the interviewer interprets the importance of criteria during the interview, the analysis process is subjective. To reduce this problem, simple three-point scale scores were chosen to judge evaluation criteria; 'not important', 'somewhat important' or 'must-have'. By constructing the scale in this manner, there is less room for interpretation than compared to scales with many possible values. Criteria that are not mentioned by the interviewee during the discussion of a category will be considered not applicable or irrelevant to Moekotte.

Determining which evaluation criteria are significant

Criteria will be considered important to Moekotte when they fulfil one of two conditions: either the factor was judged by two out of three interviewees to be 'must-have'. Alternatively, the factor was judged by at least one out of the three interviewees to be must-have and the other interviewees found the factor at least somewhat important. These conditions were set because they are estimated by the researcher to lead to a total of about 10 to 15 criteria for the design of the model, creating a workable list of criteria for the next research question (design of an evaluation model). More criteria would result in an unworkable model, less would lead to too loose decisions. This number of criteria furthermore ensures that the model is executable without spending large amounts of time, which is one of the requirements of the model.

Designing an Opportunity Evaluation Model

When designing the new model for opportunity evaluation, no data analysis takes place. To design the model, the first step is re-using one element of already existing opportunity evaluation models, specifically the phases of the *Market Opportunity Analysis* (MOA) model (as discussed in the literature review). These will form the basis for the phases in the new model of opportunity evaluation. Since the model will be designed as a stage-gate model (as will be argued in the next chapter), The phases of the MOA are formulated as stages. The next step is adding one or more gates to every stage. These gates will equal the categories of evaluation criteria that resulted from the literature review (marketing, finance, etc.). Subsequently, business opportunity evaluation methods that were found to be suited for inclusion in the model (investigated during the previous research question) will be placed inside the gates. An extra gate will then be placed inside the model, which will contain the *Strategy-Technology Firm Fit model* (as described in the literature review). Criteria are then operationalised to make the model workable for analysts. Criteria are then assigned a minimum score, based on the interviews of the first research question. Finally, An overview describing the entire model will be given.

Chapter 4. Results and analysis

Data is now presented answering the two research questions: *Which criteria for business opportunity evaluation should be included in a model of opportunity evaluation specific to SMEs?* And; *How can Moekotte evaluate their business opportunities with relatively limited resources (i.e. limited time and knowledge)?* After the second research question is answered and the model is designed, an overview of the new model will be presented.

4.1. Criteria for use in new model of opportunity evaluation

This paragraph discusses the results of the first research question, which investigates which criteria should be included into a model of opportunity evaluation. Each category of business opportunity evaluation criteria (resulting from the literature review) will individually be discussed. After all individual categories are discussed, an overview of the most significant opportunity evaluation criteria will be presented, which will be used as input for the design of the new opportunity evaluation method. In Appendix 2: Interview results, the interviews are discussed individually and in-depth.

4.1.1. Market

Criteria for opportunity evaluation residing in the 'market' category were considered relevant by both the managing director of Moekotte and by the CEO, but not as much by the CTO (as could be expected from a more technical manager). Four factors were considered significant in opportunity evaluation by the interviewees; the presence of low-cost strategists in the market, market growth, market familiarity and market intensity. The extent to which low-cost competitors are already present in the evaluation market was considered crucial to all interviewees. Should the market already contain some low-cost strategists, they would most likely not consider it a viable business opportunity. The CEO and CTO stated that the reason they found this factor so critical is that the company has some previous bad experience in a market where low-cost strategists were present. This market was so saturated that almost no profits could be made, eventually leading to the company's exit of that market. Another factor experienced to be important by the interviewees was the market growth of an industry. The managing director stated that this factor is so important to him because it strongly influences continuity, which is Moekotte's main long-term goal. The CTO also stated that "a shrinking market will even make us consider other markets, as is the case with the current business opportunity; because the industrial IT sector is shrinking, we are looking into the building automation market as part of our continuity". Market familiarity was also experienced as a noteworthy criterion by both the managing director and the CEO. The CEO stated that "as long as there is no familiarity with the new market, we don't even consider it". The CTO did not consider market familiarity as relevant, as the subject did not came up when discussing the 'market' group. Finally, market intensity was considered a critical factor in opportunity evaluation by both the managing director and the CEO. An interesting point came up in the interview with the managing director; apart from having a maximum level of market intensity, he also considered a minimum level of competitors. The reason for this is that some projects are so large that Moekotte cannot handle them alone and sometimes seeks temporary alliances with competitors.

Criteria for opportunity evaluation considered unimportant by the interviewees were; the scope of a market and the extent to which a market is international. The CEO stated internationalisation of new markets is a non-issue, as management is not considering entering a market other than The Netherlands. This had to do with two reasons; firstly because of high investment costs for a new international subsidiary and secondly because geographically speaking, cross-border expansion is less interesting than expanding within the Netherlands. This is due to the fact that larger cities in that direction are closer located to present subsidiaries. Furthermore, the CEO stated that cultural barriers might also lead to difficulties that would not be present in a national market. The other two interviewees did not discuss international expansion and thus were less interested in it.

Summarising, the market aspect of business opportunities holds four significant criteria to Moekotte; the amount of low-cost competitors, the growth rate of the market, the company's market familiarity and the intensity of the market.

4.1.2. Finance

Of the financial criteria discussed, only the criterion 'financial returns after 5 years' was considered important by the interviewees. The managing director stated that he would be even more interested in a shorter time period, more like 2-3 years. This opinion was also shared by the CEO who was more interested in a time period of 3 years. These interests correlate with the fact that the managing director is responsible for long-term planning and that the CEO is responsible for short-term planning. The CTO showed little to no interest in financial return rates. Although financial return was considered important by the managing director, he also stated that he preferred synergy in different departments of the company, rather than financial returns: "synergy would lead to a more difficult measurement of returns. Return rates could be increased in other parts of the company due to synergy, which would make the criterion harder to measure". A criterion related to financial returns is the size of the necessary investment. The managing director stated that "the investment should not be too high for us to enter it, but neither should it be too low. If the latter is the case, many competitors can easily enter the market, which results in low entrance barriers". Although the necessary investment was only considered relevant by the managing director, it is closely related to financial returns as return rates become more negative when high investments have to be made. All other criteria in the financial category were almost unanimously considered unimportant by the interviewees. One criterion that should be mentioned because it is related to the 'financial returns' and 'size of the investment' criteria, is the availability of financial resources. The managing director found this a very important factor when evaluating new business opportunities. According to him, "low-level investments in new markets are often not possible in electrical engineering markets. These markets often already contain competitors with a positive image, a customer base and technical knowledge. Because many customers only consider established companies as a supplier, any new company will have trouble obtaining customers when entering new markets, leading to lower returns in this first stage of its existence".

Concluding, the financial aspect of business opportunities only holds one relevant criterion to Moekotte; financial return rates after five years.

4.1.3. Product or service

Two criteria for opportunity evaluation were considered relevant by the interviewees in this category; the extent to which the new product or service already have a demonstrated market need and the quality and performance of a new product or service. The latter of these factors was considered more important (market director and CTO; 'must-have' and CEO; 'somewhat important'). The managing director stated that this criterion could also be split up into smaller elements., especially with regard to quality. Based on literature by Mason and Stark (2004), this criterion also should include 'appearance, styling and aesthetic appeal' of a product. However, as agreed upon by all interviewees, these do not apply in all situations, especially not within their markets. Therefore, this criterion was truncated only to include 'quality and performance'. The criterion 'demonstrated market need' was considered must-have by the managing director and considered somewhat important by both the CEO and CTO. The managing director stated that demonstrated market need can always be measured to some extent by evaluating other companies already active in the market. If there are no companies active in a new market yet, the managing director would not consider the market at all, because he has no interest in creating new markets with the company. The CEO stated more or less the same, stating that "a market needs to be already present before it is even considered to be an opportunity. Proof of a working business concept and existing customers are vital before entering a new market".

Thus, when evaluating the product and service aspects of new business opportunities, companies should look for a demonstrated market need and the quality and performance of a product or service.

4.1.4. Resources

The criteria found to be considered important in the resource category are; potential R&D alliances and strong technical capabilities. Potential R&D alliances (such as relations with suppliers in already existing products) were considered relevant for the same reason by all three interviewees; when developing software or hardware, support from suppliers is always necessary. This is due to the nature of soft- or hardware development; it is always based upon already existing industrial standards or products. Specific knowledge (often in the form of training) is thus required for developing soft- and hardware in Moekotte's industries. This could explain why Moekotte finds existing R&D alliances important in opportunity evaluation. Another important criterion for the interviewees is the extent to which technical capabilities required in a new market are already present within the company. In a market in which engineering is a major activity, this factor was expected to be highly relevant in opportunity evaluation. Both the managing director and CTO stated that technical capabilities are one of the strong points of their company, making up a major part of competitive advantage.

When discussing R&D alliances, the CEO brought up an point not discussed in academic literature. When forming an alliance with a supplier, the opportunity of becoming a reseller of that supplier could arise. This would lead to a profitable position for Moekotte, because it would result in them becoming a specialist in technical systems. It would also lower necessary investments of a business opportunity, because as the CEO put it; "the organisation supplying the system would also be eager

to invest in the opportunity because they are interested in finding partners that are prepared to 'break open' existing markets". This factor (the possibility of becoming a primary supplier of a technology, industrial protocol or brand) was added to the list of additional criteria to the literature review.

Summarising, potential R&D alliances in a new business opportunity and technical capabilities of the company are significant criteria when evaluating new business opportunities.

4.1.5. Experience of entrepreneur or manager

This category contained only three criteria in total, of which two were found significant; 'background, experience and track-record of the entrepreneur or manager leading the new subsidiary' and the size of the founding team of new subsidiaries. The managing director stated that the manager of the new subsidiary would be the most influential factor of the subsidiary's success. He furthermore stated that, since personnel costs are one of the largest expenses for a new subsidiary, it would be preferable to hire someone from inside of the company who is already familiar in the organisation. The CTO did not go as far as judging it to be the most relevant criterion for opportunity evaluation, but he did found it very important and it was the first point he came up with during the interview.

The other factor, founding team size, was especially of interest to the managing director. He expected the new subsidiary's success to be strongly influenced by the starting team size. According to him, diversity of a new subsidiary's team is important when starting new businesses. Both technical and marketing aspects of the new subsidiary have to be properly addressed according to the managing director. Another noteworthy finding is that all interviewees found it important that the starting team should not be too large. High salary costs without any guaranteed returns could not be tolerated by the company for long. Another aspect all interviewees agreed upon was the fact that the team had to be diverse. Both technical and commercial aspects would have to be represented in a new team.

Background, experience and track-record of the manager or entrepreneur leading the new subsidiary and the founding team and the team size of the new subsidiary are significant factors for Moekotte when considering new business opportunities.

4.1.6. Forecasts

In the category 'forecasts', potential market share and margin of the product or service are influential factors. Market share was experienced important to the CTO and CFO, but not to the managing director. He stated that it is not a factor Moekotte focusses on to steer the company. The managing director would rather use internal factors such as the number of employees to measure the performance of the new subsidiary. The CEO stated that obtaining a reasonable amount of market share would one of the early goals of a new subsidiary. The CTO stated that market share would be directly related to the number of projects that Moekotte could generate, a very influential factor on early profits in new projects. Margin was also considered an important factor by the managing director and the CEO. The managing director stated that margins are relevant, though not a primary target but rather an enabler of profit for the company. The CTO stated that only after the first couple of years would it become an important factor, so he would consider it less relevant in the initial phases of the new business opportunity. The CTO also stated that "even when the margin is

very small, it would still be acceptable, as long as other subsidiaries of the company could profit from it", referring to the synergistic elements of business opportunities.

Summarising, important forecasts in business opportunity evaluation are market share and margins of new products or services.

4.1.7. Other criteria

Two criteria do not fall within any category discussed in the paragraphs discussed above; the overall business plan for a new subsidiary and the overall concept and strategy of the new business. Neither of these two factors were brought up by any of the interviewees. When asked, only the managing director found these factors somewhat relevant, stating that they would most likely be used to set goals for a manager in the starting phase of the new subsidiary, but not for evaluating business opportunities.

4.1.8. Added factors

After discussing all categories for opportunity evaluation, interviewees were asked whether there were any criteria that did not fit within the categories discussed in the interviews (the same categories as described in the paragraphs in this chapter). The managing director mentioned three such factors; knowledge of customer desires, user functionality (the manner in which customers actually use products) and the technical quality of a new product or service. Furthermore, the CEO mentioned that the possibility of becoming a primary supplier of a technology, industrial protocol or brand would be a reason to consider a market for him. These four criteria were subsequently discussed with the two members of management. They did not found these factors important, making the criteria not significant for management as a whole.

4.1.9. Overview of evaluation criteria important to Moekotte

The following table provides an overview of all opportunity evaluation that were considered significant by the interviewees.

Table 4: Criteria for business opportunity evaluation considered important by interviewees

Categories	Criteria important to Moekotte
Market	Market growth
	Market familiarity
	Market intensity
	Low-cost strategists
Finances	Return rate after 5 years
Product or service	Quality and performance
	Demonstrated market need
Resources	R&D Alliances
	Technical capabilities
Experience of managers or entrepreneurs	Background, experience and track-record of manager of new subsidiary
Forecasts	Market share of new subsidiary
	Margin of new product or service

These business opportunity evaluation criteria will form the basis for the development of a new model for opportunity evaluation during the next research question.

4.2. Design of a model for business opportunities evaluation

This paragraph describes the design of a new model for the evaluation of business opportunities. Three elements were used as input for the development process; existing models for business opportunity evaluation (from literature), a format for decision-making (also from literature) and finally, opportunity evaluation criteria fit for inclusion in the model (from the previous research question).

Four make up the development of the evaluation model. Firstly, since the model is formulated as a stage-gate model, stages are created using the MOA framework as a basis. Then, gates are added to the model that represent all categories of criteria for opportunity evaluation (these criteria resulted from the literature study). Criteria that were found to be suited for use in the new model during the first research question are then added to gates in the new model. The criteria are then operationalized and assigned a minimum score. Finally, an overview of the new model is provided.

4.2.1. Format of the new model

Making a new model that involves decision-making should logically include a format or blueprint of how the model should be shaped. This will determine how decision are made model. Two requirements were set for this format for decision-making; it should be rational and the problem owner (Moekotte) should already be somewhat familiar with it. In the literature review, this resulted into three possible formats; decision trees, decision matrices and the stage-gate format.

Decision-making format

The format for decision-making that fits the demands of this research best is the stage-gate format. It is a rational model, which will result in less decisions based on instinct once it is used. Furthermore, there already is some familiarity within the company with this model. There are two other advantages to the stage-gate format that decision trees and decision matrices do not have. Stage-gate decision-making models allow for evaluation of single opportunities. Furthermore, the model clearly separates data collection and decision-making. In stages, data collection on the subject of the stage takes place. Gates are where a decision is made, either for continuing the analysis to the next stage, continuing work on the current stage or stopping the project. This clear separation of data collection and decision-making is expected to decrease researcher bias when using the model. Because minimum scores can be set before the analysis takes place, the user of the model is less influenced during the analysis (i.e. the analyst may be less tempted to set minimum scores that are below already found results).

Users of the new opportunity evaluation model will start their analysis with a hypothesis; *the business opportunity the company considers is interesting enough for the company to execute it*. This hypothesis is confirmed if all gates are accepted. The hypothesis will be rejected if any of the gates' scores do not score acceptable levels. If a gate is not passed, the analyst can choose to either drop the business opportunity, or work on improving the aspect of the business opportunity that failed (if the rejected factor can be improved with resources that are acceptable to the company and within an acceptable timespan).

4.2.2. Designing stages

The first step in designing the new model is the development of stages in the model. These stages were based on an existing model for opportunity analysis, the *Market Opportunity Analysis* (MOA) framework, as discussed in the literature review. The MOA orders its stages from broad to specific; first analysing the environment of the company, then the industry in which the opportunity resides and finally, the company and the opportunity itself. These scopes represent the macro, meso and micro environments of a company. This concept will also be used in the development of the new model, as it is logical to start the analysis broadly and then narrow down to a more detailed level. Furthermore, more narrow analysis only is necessary if an opportunity is interesting from a broader perspective (e.g. if an analysis of the meso environment proves to be very unattractive, the opportunity may be dropped and a micro analysis has no use). One of the requirements of the model is that is has to be lean. By dropping uninteresting business opportunities early in the analysis, it becomes leaner because less elements of opportunities have to be analysed.

Stages in the new model for opportunity evaluation

The first stage is the environmental analysis, which defines and analyses the macro environment. In the MOA, the authors begin with this stage because it defines later stages. After this stage, the product or service phase is placed, which analyses the product or service that the business opportunity resolves around. This phase also includes a definition of the market, in which major customers, suppliers and competitors are identified. These are only defined during this stage. The next phase (the market analysis stage) will analyse them. The market analysis stage is split into three smaller elements that analyse three participants of the market; customers, suppliers and competitors. The next stage is market demand forecasting, which attempts to forecast some aspects of the market. The final phase is the opportunity evaluation phase, which judges some aspects of the execution of the opportunity (necessary investments, resources needed, etc.).

Concluding, the new model will chronologically analyse; the macro environment, the product or service, the market, forecasts about the market and finally, the business opportunity itself.

4.2.3. Adding gates

After stages are included in the model, the stage-gate format requires that gates are added to the existing stages. Gates equal the six categories of criteria for opportunity evaluation that were found during the literature review. The categories are; market, finance, product or service, required resources, experience of the entrepreneur or manager and forecasts. One extra gate is added that contains an existing model for determining how well business opportunities fit with existing products or services; the *Strategy-Technology Firm Fit audit* model.

Placing gates in the model

The location of gates are decided by the researcher. Every location was attempted to be placed after the stage that were found most fitting to that gate (e.g. the 'product or service' gate was placed after the 'product or service' phase). Locations of gates will now individually be discussed.

The first stage, the environmental analysis, will not contain any gate, as this gate is simply meant to gain an idea of the surroundings of the environment in which the opportunity is located. The second stage which analyses the product or service and defines the market should logically be followed by

the product or service gate. The market phase analysis is followed by the 'market' gate. The next stage, market demand forecasting, is followed by the forecasts gate. The final stage (market opportunity evaluation) is followed by the remaining gates, which are finances, resources and the entrepreneur or manager. The gate that executes the *Strategy-Technology Firm Fit audit* model is also placed after the last stage. This led to the following layout for the new model:

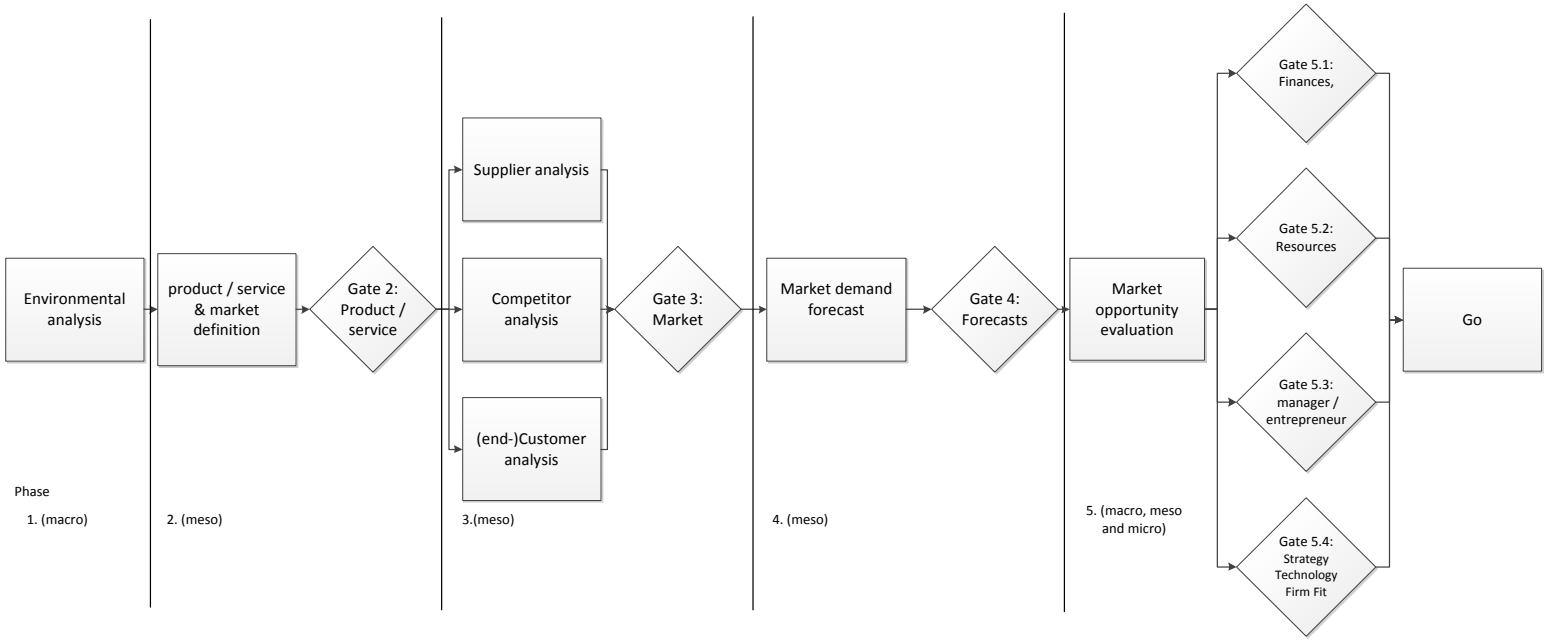

Figure 5: Order of stages and gates in the new model for business opportunity evaluation

4.2.4. Evaluation criteria in gates

After a formulation of stages and gates, a definition is needed of what exactly is evaluated in every gate. For this purpose, the first research question investigated which criteria for business opportunity evaluation could be placed within a model for opportunity evaluation. These criteria are placed inside gates of the model.

The list of business opportunity evaluation criteria resulting from the first research question contains twelve criteria. Since gates in the new model are equal to the categories of these evaluation criteria, criteria are simply placed within the gate that equals their category. This resulted in the following locations for criteria:

Table 5: Overview of gates and their corresponding criteria in the new model

Gate	Criterion
2: Product or service	Quality & performance
	Demonstrated market need
3: Market	Market growth
	Market familiarity
	Market intensity
	Extent to which low-cost strategists are already in the market
4: Forecasts	Market share of new subsidiary
	Margin of new product or service
5.1: Financial factors	Return rate after 5 years
5.2: Resources	R&D Alliances
	Technical capabilities
5.3: Experience of managers or entrepreneurs	Background, experience and track-record of manager of new subsidiary
5.4: Strategy-Technology Firm Fit	Strategy-technology firm fit model.

Because this list contains only a small number of evaluation criteria, companies require less time for the evaluation of opportunities. One of the goals of this research is to develop a method for opportunity evaluation that is lean and thus suited for SMEs who have limited time to spend on evaluation of new opportunities. Requiring little time for opportunity evaluation adds to this goal.

4.2.5. Operationalisation of evaluation criteria

After criteria for business opportunity evaluation are included in the model, they need to be made measurable. Furthermore, minimum scores need to be assigned to every criterion in order to decide what score is necessary for accepting gates. The operationalisation of evaluation criteria was mainly attempted to be based on articles from which the criteria originated during the literature review. However, this was not always possible as some articles do not discuss the operationalisation of their criteria. For those criteria, a definition was developed by the researcher. Operationalisation of every criterion will now be discussed individually, in the order that they are encountered in the model.

Operationalisation of product or service criteria

Quality and performance are defined by Mason and Stark as “the nature of the product, in terms of its … quality and performance” Mason and Stark (2004, p. 238). As quality (and to a certain extent performance) cannot be measured objectively, this factor has to be based on a subjective judgement by the analyst using the model for business opportunity evaluation. A simple three-point ordinal scale (high, medium, low) is suggested for the scoring of this criteria, because this provides less room for interpretation than compared to a scale with more values.

Operationalisation of market criteria

Demonstrated market need is defined as the extent to which other organisations already exploit a product or service (criterion obtained from Mason and Stark (2004, p. 238), but no operationalisation provided by these authors). Two possible methods of measuring demonstrated market need are through observing competitors in the market and by measuring expectations of market need within the company doing the analysis. The criterion was defined as an ordinal variable, with three possible values; market need already proven, market need not yet proven but good expectations and market

need not yet demonstrated and low expectations. These represent the high, medium and low scores of the criteria. The criterion 'market growth' is defined as "the extent to which average firm sales in the industry increase" (Song et al., 2008, p. 12). As market growth is a percentage, it can be either positive, neutral or negative. These values represent either a growing, stable or shrinking market. It can be calculated as an exact percentage, therefore making the variable a ratio. Market familiarity was defined by MacMillian et al. as the "extent to which the company is already familiar with the market" MacMillan et al. (1986, p. 121). Companies can be either familiar with a target market or not. A company may also be familiar with a closely related market, as was experienced by Moekotte. This can be considered a medium score for the criterion, leading to the following scale for the 'market familiarity' criterion: the company is familiar with the target market (high), the company is familiar with related market(s) (medium) and the company is unfamiliar with both the target and related markets (low). These values make this criterion's scale ordinal. Companies are expected by the researcher to often score at least medium on this criterion (familiar with related markets). This is because when industries are related to current markets of companies, the expectation is that these industries are often considered business opportunities.

Market intensity is defined as "The extent to which a firm is pursuing a strategy based on unique marketing effort" (Song et al., 2008, p. 12). Market intensity is operationalised using the so-called mark I and mark II classification of industries, making the criterion dichotomous. The main difference between mark I and II industries is that mark I industries are less 'developed'; they are easier to enter, there are lots of opportunities to innovate, there are not many entrance barriers and no heavy R&D costs are necessary (Malerba & Orsenigo, 1997, pp. 85-86). Mark II industries are more developed and require stronger R&D investments, thus making them less interesting for companies that cannot make the necessary financial investments. The reason for using the mark I and II theory for operationalisation of this criterion, is that the researcher believes that the theory fits well to market intensity. The more developed an industry is (i.e. a mark II industry), the more intensive it usually is. The next criterion, strength of low-cost strategists in the target market, is defined as "the extent to which low-cost strategists are already present in the market" (Song et al., 2008, p. 12). Which companies are considered low-cost strategists is subjective and will need to be judged by the analyst using this model. Competitors that should be included in this part of the analysis should fall within the market definition that was set during the second stage of the model (the market definition stage). The level of low-cost competitors that is acceptable to the company using the model is highly subjective and dependant on the industry. Moekotte's CEO stated that when more than five low-cost strategists are in the market, he would likely not enter the market. This statement was used to create the scale for this criterion; high means more than ten low-cost strategists in the market, medium means more than five major low-cost strategists in the market and low means less than five low-cost strategists in the market. Because the low-costs strategists in the target market is an exact number, this criterion's scale is a ratio.

Operationalising forecasting criteria

The criteria 'market share' is defined in this research as the forecasted market share of the new subsidiary in the defined market. This criterion was obtained from Hart et al. (2003, p. 28), but a definition was not given by these authors. Future market share may be hard to forecast for organisations entering totally new markets. If a company is already active in a market that is very similar to the new market, a possible way of measuring future market share is by comparing which

costs and profits can be expected in the new market, compared to the existing market. The same method can be applied to already existing competitors in the new market. The analyst should experience the forecasted market as being high enough for the company to be acceptable. Market share can be measured with one of two methods; percentage of the total market (top-down) or by measuring a number within the company, such as turnover or number of projects (bottom-up). The researcher deems the former method (top-down) very difficult, if not impossible to predict. This is due to the fact that it may be hard to find out key figures of an industry. Companies are often located in sub-markets of industries. For example, Moekotte is active in three sub-industries of the electrical engineering industry. There are a number of key figures available of the total electrical engineering market, but not for any of the specific sub-markets Moekotte is active in. This makes the method of calculating market share as a percentage of the total industry difficult for organisations. The alternative, measuring a key figure within the company such as turnover, profit, etc. seems more feasible to analyse. The CTO of Moekotte stated that it would be possible to predict the number of projects within a year, which according to him was a very important factor for Moekotte. Because this method appears more feasible, it was chosen as operationalisation for this criterion. As acceptable market shares depend on the industry, a three-point scale was chosen to measure market share in; high (market share is sufficient), medium (market share is about sufficient) and low (market share is insufficient). This criterion is an ordinal variable.

The criteria 'forecast of margin of the new product or service' was obtained from Hart et al. (2003, p. 28) (no operationalisation was given by these authors). It may be measured by looking to similar products or services already exploited by the company or to already existing competitors in the new industry. The operationalisation of this criterion should not include specific percentages, because these depend on the industry and the company. Therefore, the criterion was operationalised as; high (sufficient margin), medium (just about sufficient margin) or low (insufficient margin), These values make the criterion an ordinal variable.

Operationalising financial criteria

Return rate (MacMillan et al., 1986, p. 121) is a financial ratio (number) which can have any value (negative or positive). A value of zero means profits of the new business opportunity were equal to investments, a negative value investments were larger than profits and a positive number means profits are larger than initial investments in the business opportunity. Because it is an exact number, this criterion is operationalised as a ratio.

Operationalising resource criteria

R&D alliances are defined as "the firms use of R&D cooperative arrangements; for NTVs (new technology ventures). They also correspond to horizontal alliances" (Song et al., 2008, p. 12). The researcher proposes two aspects which can be used to measure this factor; the extent to which alliances are already formed and the extent to which alliances are likely to be formed. This suggestion is based on the interviews of this research, in which almost all interviews commented on these two subjects. The two aspects lead to four possible values for this criterion; very high (R&D alliances are formed), high (R&D alliances are expected to be formed, but not currently formed), low (R&D alliances not formed and not likely to be formed) and very low (R&D alliances are impossible to be formed). These values make this criterion's scale ordinal. The next criterion, technical capabilities, is defined as the extent to which the organisation is already familiar with the core technologies used

in the new opportunity's industry (criterion obtained from Kakati (2003, p. 449), but no operationalisation provided by these authors). It is also possible that an organisation is familiar with similar technology as the one necessary in the new business opportunity (this is the case with one of the business opportunities Moekotte currently faces). Taking into account these two factors (familiarity with necessary technologies and familiarity with similar technologies), four possible values are defined in this research for the scale of this criterion. The criterion can be either high (the company is already familiar with the technology required in the new business opportunity), medium (the company is familiar with similar technologies as the one required in the new business opportunity) or low (the company is unfamiliar with the technology required in the new business opportunity or any similar technologies), making this an ordinal criterion.

Operationalising manager or entrepreneur criteria

The criteria 'background, experience and track-record of manager of new subsidiary' is defined as the number of years manager of the new subsidiary has experience with the target market (criterion obtained from Mason and Stark (2004, p. 238), but no operationalisation provided by these authors). Operationalisation of this criterion was based on the interviews with Moekotte's management, in which all interviewees stated that they would not accept a manager or entrepreneur for their new subsidiary if he or she did not have at least ten years of experience in the target industry. The values of the criterion were defined as; high (more than ten years of experience), medium (less than ten but more than five years of experience) or low (less than five years of experience). This criterion is operationalised as a ratio.

Operationalising business opportunity firm fit criteria

The criterion technology firm fit is measured somewhat different, because this criterion is actually the *strategy-technology firm fit* model (as discussed in the literature review). This model analyses 11 aspects of the new business opportunity and then compares them to existing products or services. The extent to which the scores are equal determines the extent to which the new product or service fits within the existing strategy of the company. The model is made up of four categories for strategy-technology fit. The researcher has chosen a three-point scale in which every value covers a range of scores in the model; very high (between all and three-quarters factors are equal), high (between three-quarters and half factors are equal), low (between half and one-quarter of factors are equal) and very low (between one-quarter and none of the factors are equal). This makes for an ordinal criterion.

4.2.6. Determining minimum scores of evaluation criteria

After operationalising evaluation criteria for business opportunities, a minimum level will be set that each criterion should score, in order to pass its corresponding gate in the evaluation model. Minimum scores for every criterion were based on the same interviews that determined which opportunity evaluation criteria should be included in the model (interviews of the first research question). During these interviews, interviewees were asked not only which criteria they would include, but also what levels these criteria should score. The criteria are now individually discussed.

Minimum scores for products or services

Quality and performance of products and services was experienced by both the managing director and the CTO as being crucial to their decision-making on business opportunities. They both stated that the quality of their products and service had to be more or less perfect in order to even be considered by potential customers. The quality and performance of a product or service should therefore be experienced as being reasonably high by analysts in order to be acceptable. A demonstrated market need was also considered must-have by the managing director and very important to the CEO and CTO. Therefore, the researcher has chosen to make this criterion's minimum score 'high', meaning a market demand should already be proven by observing other companies in the industry.

Minimum scores for market criteria

Market growth was expressed by both the managing director and CEO of Moekotte to be a very heavy weighing pre-requisite for entering a new market. They stated clearly that they would not enter a market that was not growing. Market growth should therefore at least be a positive percentage. Both the managing director and the CEO stated that the company should be familiar with most of the norms and values of a market. Without knowledge of norms and values, they would estimate their chances of survival in the market low. Therefore, the minimum required score for market familiarity was set to high (the company must be very familiar with the target market). Market intensity can be classified as either a Mark I or Mark II industries (as discussed earlier in the operationalisation of this criterion). According to the interviewees, mark I industries are what describes the market opportunity that Moekotte seeks best; low entrance barriers, low investments necessary in R&D and no large competitors that have already taken up most of the market. Therefore, the market intensity criterion should only be accepted if the market can be classified as a Mark I industry by the analyst. Regarding the extent of low-cost competitors in the market, all three interviewees stated that they would definitely not enter the market if there were a significant number of them. The CTO stated, 'the amount of low-cost strategists influences the profitability of an industry very strongly'. During the interviews, the interviewees did not mention any specific number of maximum low-cost strategists. When asking for this value afterwards the interviews, the CEO and CTO mentioned a maximum number of around 5 to 10 low-cost strategists. The maximum level allowed was therefore set to medium (no more than five major low-cost strategists known).

Minimum scores for forecasts

Because of the unreliable nature of forecasts, both criteria in this category (market share and margins of new product or service) gained no minimum score. Interviewees all stated that the areas evaluated in forecasts are relevant, but that forecasts would not influence their decisions. This reduces the purpose of evaluating criteria in this category at all. However, it may still be useful to

evaluate the criteria, simply because it forces analysts to think about the future attractiveness of business opportunities.

Minimum scores for finances

Profits after a few years is considered an important factor by all three interviewees. They stated that some form of return had to be reached after a time period of about 5 years. However, neutral profits would be acceptable to them too, as long as other subsidiaries of Moekotte would profit from the opportunity by synergistic events. Therefore, minimum required profits were set to neutral.

Minimum scores for resource criteria

R&D alliances were considered important by all three interviewees. The managing director and CTO were interested in obtaining required knowledge for the software development process, whereas the CEO was more interested in becoming a primary supplier of hardware brands. These demands justify a minimum score of 'high'; either an already formed R&D alliance, or a positive outlook on the formation of alliances.

Technical capabilities was considered an important factor by all interviewees. However, they acknowledged that entering a new market with fully developed technical capabilities would be unlikely. The reason the interviewees considered their current potential new market however, was because they are already familiar with similar technologies. Familiarity with technologies that are similar to technologies of a new business opportunity is thus required for the opportunity to be attractive (medium score).

Minimum scores for the manager or entrepreneur

The background, experience and track-record of the manager of the new subsidiary were experienced as being very important to the interviewees. The CTO even brought it up as first point when starting the interview. The CTO furthermore wrote a job description for a vacancy for the function, mentioning a minimum of ten years within the industry. The number of years of experience of the manager or entrepreneur therefore will need to be at least ten (minimum score of 'high').

Minimum scores for strategy fit of new opportunity

This gate differs somewhat from other gates. It contains the *strategy-technology firm fit* model, as discussed in the literature review. The model contains 11 factors spread over four tiers, that evaluate the similarity between a new product or service and existing ones. The extent to which they are equal depends on which factors in the model are judged to be equal. The model analyses two categories; managerial skills and engineering skills required in the business opportunity. Minimum scores for these criteria were based on two statements. Firstly, because the criterion 'background, experience and track-record of manager of the new subsidiary' has a minimum score of 'high' (more than ten years), the management capabilities that are examined in the *strategy-technology firm fit* model should also be very high. This means that the analysis of required managerial skills in the model will have to equal by at least three-quarters. For engineering skills, the analysis of new and existing business opportunities using the model should at least be similar by half the factors discussed. Interviewees stated that it is impossible to already have all required technical capabilities when entering a new business opportunity, justifying this high score.

Overview of operationalisation and minimum scores of criteria

An overview of every criterion's possible values and minimum required scores is now presented.

Table 6: Overview of operationalised business opportunity evaluation criteria and their minimum scores

Gate	Criterion	Possible values	Minimum score required for passing gate
2: Product or service	Quality and performance	Experienced as; high, medium, low	High
	Demonstrated market need	High (already proven), medium (not yet proven but good expectations), low (not yet demonstrated and bad expectations)	High
3: Market	Market growth	Percentage; positive, neutral, negative	Positive
	Market familiarity	High (familiar with target market), medium (familiar with a related market), low (unfamiliar with target market).	High
	Market intensity (lower is better)	Low (Schumpeter Mark I), high (Schumpeter Mark II industry)	Low (maximum score)
	Extent to which low-cost strategists are in the market (lower is better)	High (> 10 major low-cost strategists known in market), medium (> 5 major low-cost strategists known in market), low (< 5 low-cost strategists known in market)	Medium (maximum score)
4: Forecasts	Market share of new subsidiary	high (sufficient market share), medium (market share is about sufficient) and low (insufficient market share).	n.a.
	Margin of new product or service	high (sufficient margin), medium (just about sufficient margin) or low (insufficient margin).	n.a.
5.1: Financial factors	Return rate after 5 years	The return rate is; negative, neutral, positive	Neutral
5.2: Resources	R&D Alliances	Very high (already formed), high (likely possible to be formed), low (not likely to be formed), very low (impossible to be formed).	High
	Technical capabilities	High (already familiar with technology), medium (familiar with similar technologies), low (unfamiliar with technologies)	Medium
5.3: Experience of managers or entrepreneurs	Background, experience and track-record of manager	High (> 10 years), medium (< 10 years), low (< 5 years).	High
5.4: Strategy-Technology Firm Fit	General managerial capabilities	Very high fit (at least 3/4th equal), high fit (at least 2/4th equal), low fit (at least 1/4th equal) or very low fit (less than 1/4th equal).	High
	specialised managerial capabilities	Very high fit (at least 3/4th equal), high fit (at least 2/4th equal), low fit (at least 1/4th equal) or very low fit (less than 1/4th equal).	High
	generic engineering skills	Very high fit (at least 3/4th equal), high fit (at least 2/4th equal), low fit (at least 1/4th equal) or very low fit (less than 1/4th equal).	Medium
	specific engineering skills	Very high fit (at least 3/4th equal), high fit (at least 2/4th equal), low fit (at least 1/4th equal) or very low fit (less than 1/4th equal).	Medium

4.3. Overview of the new model

The new model is now fully developed and was dubbed the *Business Opportunity Evaluation Method*. An overview of the model will now be presented that discusses all stages, gates and evaluation criteria. It will also provide some examples of how organisations may measure data required in the model.

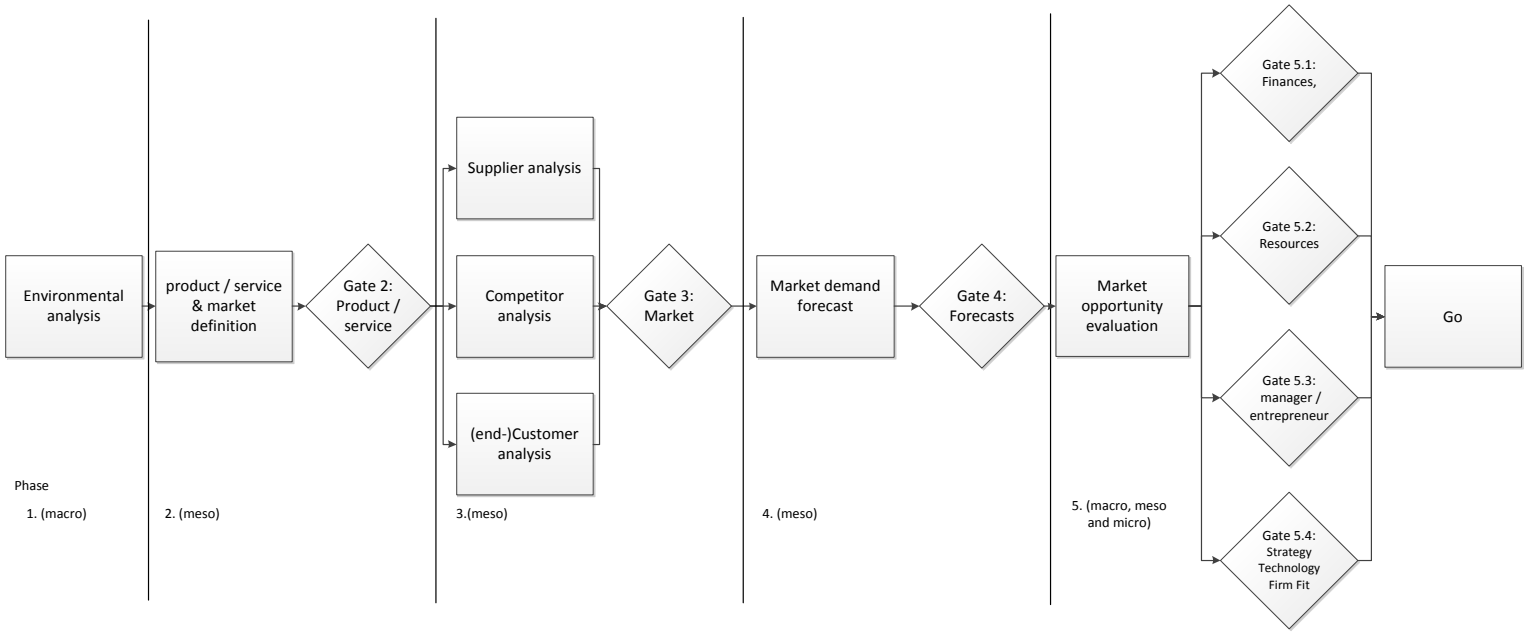

Figure 6: Business Opportunity Evaluation Method

Stage: environmental

The first stage (the environmental analysis) conducts a macro analysis of the global surroundings of the organisation. The purpose of the stage is to explore the new market opportunity and define the macro environment of it, in terms of end users, products or service offering and geographical area. The stage analyses not only the macro environment of the company, but also macro factors that influence the business opportunity. The manner in which the macro analysis takes place may be decided by the analyst, for example by using well-known models in the field of business administration such as DESTEP, which investigates demographic, economic, social-cultural, technological, ecological and political aspects of the macro environment (Oostra & Slaa, 2006). This stage does not contain a gate because it is meant as an explorative stage.

Stage: market definition

The second stage defines the market of the business opportunity. The market is not yet analysed in detail, as this will occur in the following stage. Users of the model can analyse whether the business opportunity is part of an already existing industry. An industry may be defined as “a group of companies making similar products or services that can replace each other” (Oostra & Slaa, 2006, p. 107). The geographical area of the business opportunity should also be defined.

Stage: product or service

In the second stage, the business opportunity's product or service are defined and analysed. Data for the second gate will also have to be obtained, which means that in this stage, information will be gathered about the product or service's quality, performance and the extent to which it already has a demonstrated market need. Possible methods of data collection for this gate include interviewing product experts, inquiry at trade organisations or analysing already existing companies the new market.

Gate: product or service

The second gate evaluates two criteria of the product or service; the quality and performance or the product or service and the extent to which the product or service has already demonstrated its market need. Product or service quality can be difficult to measure, because it is often subjective. An example of a possible method of quality measurement can be through interviews with customers or internal project leaders during and before projects. If the product or service does not yet exist, judgement of this factor will have to be based on the level that product experts think it may become when the product or service is finished. The overall quality should be experienced by the analyst as high in order to pass this gate. The product or service is also required to have a demonstrated market need in order to pass this gate. This criterion is often measurable by observing competitors, both in local or international markets in which the product or service is already exploited. Analysing international markets can be even more valuable, because international competitors do not necessarily compete directly with the company and thus may be more willing to share some of their information.

Stage: market

If the product or service gate is passed, the analysis moves to an evaluation of the market. In this third stage, the organisation researches the market in terms of suppliers, competitors and (end-) customers. Possible methods of data collection through interviewing experts (both outside and inside the company), or financial investors who are familiar with the target industry such as banks. Another possible method of analysing data of the market is analysing (end-)customers through consumer panels, interviews or surveys.

Gate: market

The third gate analyses four aspects of the market; market growth, the company's familiarity with the market, market intensity and the extent to which low-cost strategists are already present in the market. Market growth will have to be positive in order to pass this gate. This can be measured though the use of (financial) analysts of industries. For example; banks often develop yearly reports of individual industries, often containing calculations of market growth (an example of this is the Dutch Rabobank). Market familiarity is a subjective criterion that is measured by evaluating how much is already known about an industry within the company. This can be evaluated through internal discussions or interviews with product experts, sales, or if applicable, marketing personnel. Market familiarity will have to be experienced by the analyst as high in order pass through this gate. The intensity of the market must be of a sufficiently low level in order to pass this gate. Measuring market intensity is done by classifying it either as a mark I or mark II industry. Mark I industries are less 'developed' and are easier to enter. There are generally more opportunities to innovate and

there are not many entrance barriers and no heavy R&D costs are necessary (Malerba & Orsenigo, 1997, pp. 85-86). Only mark I industries are accepted in this gate. Finally, the amount of low-cost strategists is investigated. A maximum of five low-cost strategists within the geographical area of the market is allowed in order to pass this gate.

Stage: forecasts

In the fourth stage, two forecasts are made; potential market share of the new product or service and the margin of the new product or service. These forecasts can be difficult to predict, but possible methods include looking to similar products or service, interviews with product engineers and sales employees and looking for industry averages or asking branche organisations. Banks and other types of investor organisations also can offer some insight in these numbers.

Gate: forecasts

In the fourth gate, no minimum scores were set (all scores are acceptable), due to the unreliability of forecasts. Rather, the stage accompanying this gate serves as a method of increasing the knowledge of the business opportunity.

Stage: market opportunity

The market opportunity evaluation stage analyses some overall aspects of the opportunity. The gates accompanying this stage analyse also aspects of the company. There are four gates accompanying this stage; finances, resources, aspects of the manager leading the new subsidiary into the new opportunity and strategy-technology firm fit.

Gate: finances

The first gate in this stage includes one criterion; the return rate of the investment over the first five years of the new venture. These can be forecasted by looking to similar products or other companies in the new market that are already exploiting the product or service.

Gate: resources

The second gate in this stage evaluates two types of resources; R&D alliances and technical capabilities of the company. R&D alliances can be evaluated by looking into already existing relations with suppliers or competitors in already existing products. An R&D alliance in the form of obtaining technical knowledge of a product is often not a problem to obtain. Suppliers are likely willing to offer this knowledge in order to sell their products. Technical capabilities of a product or service are measured by interviewing either technical personnel, such as engineering or development, or managers of technical departments. The technical knowledge of personnel needs to be at least somewhat related to the technologies of the new business opportunity in order to pass this gate.

Gate: manager or entrepreneur

The market opportunity stage analyses the manager or entrepreneur executing the business opportunity. The criterion in this gate looks into the background, experience and track-record of manager or entrepreneur, which has to consist of at least ten years the industry in order for this gate to pass.

Gate: strategy-technology firm fit

The fourth gate, the fit of the new business opportunity with existing business of the company is evaluated by filling out the *strategy-technology firm fit* model as described in detail in the literature review. The firm fit model analyses general managerial capabilities, specialised managerial capabilities, generic engineering skills and specific engineering skills. If managerial skills have three-quarters of the factors described in the model in common with already existing products or services, these criteria are acceptable. For engineering skills, at least half of the factors of the model will have to be equal to the new business opportunity in order to pass the gate.

Go or kill decision

When all of these gates are accepted, the business opportunity is hypothesised to be acceptable. If any of the gates is not accepted, the company should be advised not to execute the business opportunity. A gate that was not passed does not necessarily mean that the analysis should stop at that point. Some criteria can be worked on (such as technical knowledge, which can be increased over time), making it useful to finish the analysis even with one or more gates already failed. The failed gates can then be seen as improvement criteria that should be worked on before re-evaluating opportunity at a later time.

Chapter 5. Reflection of the new model for opportunity evaluation

After designing the *Business Opportunity Evaluation Method* evaluation, it may be useful to see how the model performs in practice. This can show whether the model is actually workable and thus increase practical relevance of this study. It may also show sources for obtaining data in the analysis. Another contribution of the practical example is that it can test whether design requirements for the model were reached. A major requirement set at the beginning of this research, is that the model has to be executable by spending limited amounts of time and resources.

Appendix 3 presents a practical example of the model in which a current business opportunity of Moekotte is analysed. This example analyses the business opportunity by walking through every step of the model. The conclusions that are drawn from the example regarding usability of the model, used data sources in the analyses and the usability for SMEs will be discussed in this chapter.

5.1. Usability of the model

In the practical example of the analysis, three situations were encountered in which the *Business Opportunity Evaluation Method* was either expanded upon or changed to make the model more workable for Moekotte's current business opportunity.

Defining customers, their needs and resulting products and services

The analysis of customers is part of the marketing analysis stage in the model. When interviewing colleagues to gather information about the subject, the discussion often arose which customer groups should be targeted. The same occurred with definitions of the exact products and services that should be offered. This led to a need for a tool or model that differs between customers, customer desires and the product or service that should be offered. Such a tool is the business domain model of Abell (1980). In interviews and discussions, Moekotte employees found this to be a very useful addition to the model as it provided them with a method to organise their thoughts on the three subjects. They had previously not thought along the three dimensions Abell defines in the model; customers, customer desires and products or services.

Expansion of forecasting factors

A second situation in which the practical example where the *Business Opportunity Evaluation Method* was expanded upon, was the forecasting phase. The model contains two forecasts; potential market share of the new product or service and the margin of the new product or service. In the practical case, the business opportunity evaluation method was experienced as being *too* lean, because the two forecasts provided an incomplete perspective of the future of the business opportunity. After presenting results to management, they strongly desired more information about the future of the business opportunity. To add some body to the forecasting section of the business opportunity, forecasts were added to this list, based on the forecasting phase of the *Market Opportunity Analysis* (Woodruff & Gardial, 1996, p. 34). These contain forecasted financial, sustained advantage, synergistic and company and brand image criteria. The goal of forecasting in this model is not to calculate exact numbers (which are likely to be inaccurate), but rather to give decision makers an idea of which major forces are at work in the forecasts described in the phase.

Strategy-technology firm fit

A third element of the *Business Opportunity Evaluation Method* that was altered, is the last gate of the model; the *strategy-technology firm fit*. This gate exists entirely of the strategy-technology firm fit model, in which existing products and services are compared to the products and services of the new business opportunity. In the practical analysis, interviews with colleagues were conducted to obtain information for the analysis. When doing so, a problem was encountered that is specific to Moekotte, but perhaps also to other SMEs; the company was unable to give a clear definition of its own products or services, making the model unworkable. Interviewees could not clearly state which products or services the company exactly offered and even if they could, these often differed among interviewees. This problem was explained by the managing director of Moekotte, who stated that the company evaluates every order that is placed by customers. When required knowledge and skills are present within the company, the assignment is taken. This problem defeated the purpose of the gate, which is to test how well new products or services match with existing ones. The difficulties encountered in this gate led the researcher to suspect that the model underlying the gate may be less suited for smaller organisations. The authors of the model state that the technology firm fit model was originally intended for "entrepreneurial firms and established enterprises" (Walsh & Linton, 2011, p. 201). They make no comment on smaller organisations using their model, although they do use an 'entrepreneurial' company as an example for their model which resulted in no problems during usage.

Although not working well for Moekotte, the *strategy-technology firm fit* gate might work in other organisations. If companies using the model are unable to clearly define what their products and services are, they may drop the use of the gate from the model. However, it may be better for them to work on a clear definition of their own products and services and then use the strategy-technology firm fit, as the researcher believes all companies can profit from such a definition.

5.2. Data sources used in the analysis

The practical analysis may serve as an example for the data sources used within the analysis. These data sources will now be discussed. For much information required in the analysis, experts within the company were interviewed. These included engineers (for technical aspects of the product and service), calculators (for financial aspects of the business opportunity) and management (for forecasts and environmental factors). In the financial and forecast phases, financial databases such as those of the Chamber of Commerce were mainly used, often in combination with governmental databases such as the Dutch *Centraal Bureau voor de Statistiek*. Product information was often obtained from supplier websites and hobbyist websites. Finally, industry organisations and industry-specific reports of banks were often used to obtain industry-specific numbers or percentages.

5.3. Usability of the model for SMEs

The *Business Opportunity Evaluation Method* was developed for a very specific purpose; to be an addition to already existing opportunity evaluation models by requiring smaller amounts of resources for its execution, compared to existing models. The developed model was thus developed to be 'lean' by limiting the amount of criteria that are included in the model. Using the model, a current business opportunity of Moekotte was analysed and documented in about one week of fulltime work by the

researcher. This is assumed to be an acceptable amount of time for SMEs to analyse their business opportunities. Apart from analysing the business opportunity, companies will also need to make a decision on whether or not to execute the business opportunity, which will add some time to the analysis. To find out whether or not the model is truly workable within acceptable time constraints, multiple cases will have to be analysed using the new model. In this reflection, only a single case was analysed, reducing the generalisability of this finding.

5.4. Conclusions of the reflection

Concluding, some aspects of the *Business Opportunity Evaluation Method* work well in practice, other aspects may be altered in future research; the addition of Abell's model for defining business domains, the addition of extra factors to the forecasting phase to increase completeness of the phase. The strategy-technology firm fit stage may be left out by companies using the model, as it proved to be unworkable within Moekotte due to vague definitions of products and services within the company.

A limitation of these conclusions of the reflection is that they are based on a single case of the model. Analysing multiple business opportunities using the model would be a more suitable method to test workability. Furthermore, the current research only analysed workability and requirements, but not validity of the model. Validity determines whether or not use of the model will lead to higher levels of firm success in executed business opportunities that were analysed with the model. Future research could test validity of the model by analysing multiple companies in a classical experiment. The independent variable would be the use of the Business Opportunity Evaluation Method. The dependent variable would be firm success in execution of new business opportunities. Such an experiment could test whether or not use of the model would truly lead to higher success rates in business opportunity execution.

The added value of the model lies mainly in providing SMEs with a lean alternative to already existing models for the evaluation of business opportunities. Leanness is expected to add to usability for SMEs because they have limited resources such as time available for opportunity evaluation. From a practical perspective, the model provides Moekotte with a method to analyse their business opportunities. Furthermore, using the model makes decision-making in organisations more tacit, as was also experienced by Moekotte's management. This may add to the thoroughness of long-term strategic planning.

Chapter 6. Discussion and conclusion

This chapter describes key findings, a discussion of the research and conclusions drawn from the research results. Limitations and future research directions will also be discussed.

6.1. Key findings

Criteria for business opportunity evaluation in academic literature

The research began by investigating which criteria for business opportunity evaluation are available in academic literature. These criteria analyse the following aspects of the business opportunity; the market, financial aspects, products and services of the opportunity, resources required for the opportunity, experience of manager and forecasting aspects of business opportunities. Two existing evaluation methods were found; the *Market Opportunity Analysis* (Woodruff & Gardial, 1996, pp. 32-35) and the *Strategy-Technology Firm Fit audit* (Walsh & Linton, 2011, pp. 199-213). These models proved useful, although they were not tailored to the specific needs of Moekotte; a lean evaluation model that not only focusses on purely financial aspects.

Criteria used by SMEs to evaluate business opportunities

Consequently, the research investigated which of the found opportunity evaluation criteria are best suited for use in the development of a new model for opportunity evaluation. This was done by interviewing Moekotte's management. The found criteria are; the target market's growth, the target market's familiarity, market intensity, the amount of low-cost strategists in the market of the new business opportunity, forecasted return rate after 5 years, the new product's or service's quality and performance, the extent to which the new product or service has a demonstrated market need, possible R&D Alliances in the new market, available technical capabilities within the company, the manager of new subsidiary's background, experience and track-record, forecasted market share of the new subsidiary and forecasted margin of new products and services.

Development of model for business opportunity evaluation

Using the found research results (existing business opportunity models and criteria fit for opportunity evaluation), a model for business opportunity evaluation was developed in the format of a stage-gate model. This process started with defining stages (in which information about the business opportunity is gathered) and gates (in which business opportunity evaluation criteria are tested). After criteria for evaluation were placed within gates, they were operationalised and a minimum score was assigned to them.

Practical example

Once the model was finished, it was used in practice to analyse one of Moekotte's current business opportunities. This serves as an example for users of the model and can show what data sources may be used in the analysis and evaluated how well the model performed. Some points for expansion and improvement of the model were found and discussed.

The goal of this research was to develop a method for business opportunity evaluation that may be used by SMEs without spending large amounts of time and resources. This goal was met by developing the *Business Opportunity Evaluation Method*. This model can be used to analyse current and future business opportunities by Moekotte.

6.2. Discussion

Existing models for business opportunity evaluation

As discussed in the literature review, some models for opportunity evaluation are available in academic literature, most noticeably the Market Opportunity Analysis (Woodruff & Gardial, 1996). This model may also be used for opportunity evaluation, but is less suitable for smaller organisations; it requires much time and effort to make a full analysis of a business opportunity, as shown by Golicic et al. (2003, p. 8) who use a team of three researcher when conducting a MOA in practice. The Business Opportunity Evaluation Method can be seen as a complementation to the MOA. It analyses a small number of criteria that are specific to Moekotte, making it more specialised to companies who are willing to spend less time on business opportunity evaluations. The practical example of the Business Opportunity Evaluation Method showed that it is possible to conduct an analysis of a business opportunity within a timespan of around one week, which is considered acceptable to SMEs by the researcher. Another model for opportunity evaluation is the *strategy-technology firm fit model* (Walsh & Linton, 2011). This model analyses only a very narrow aspect of a business opportunity; the strategic fit of business opportunities with already existing aspects of the company. The new Business Opportunity Evaluation Method is a model that analyses more than the fit between new and existing products or services and can thus be seen as an expansion of the strategy-technology firm fit model. Concluding, this research extended existing business opportunity evaluation models by developing a new model that focusses specifically on the needs of SMEs.

Opportunity evaluation by SMEs

Business opportunity are evaluated in different ways, depending on the type of stakeholders. For example, investors may be interested in very different criteria than companies. Researchers have investigated some of these different perspectives (Hart et al., 2003; Kakati, 2003; MacMillan et al., 1986; Mason & Stark, 2004; Song et al., 2008), but none of them have thus far focussed on small-medium enterprises (SMEs). The current research provides a (limited) perspective on how this type of organisation evaluates their business opportunities. One of the assumptions that was made at the start of this research, is that SMEs are less interested in short-term earnings, but have greater interest in factors such as continuity and long-term survival. Of the criteria for opportunity evaluation that are of interest to Moekotte, many resolved around non-financial criteria (11 out of 12), somewhat confirming this hypothesis. However, as this research only investigated one SME, its external validity is too low to draw any conclusions from it regarding other SMEs.

Evaluation by stakeholders of business opportunities

It may also be useful to take a more detailed look into what the differences are between opportunity evaluation by Moekotte and other types of stakeholders of business opportunities (according to literature). Examples of other types of stakeholders are venture capitalists, investors, etc.. In the marketing category, market growth and market familiarity are contributions to venture success, according to both Kakati (2003, p. 449) and MacMillan, Zemann, and Subbanarasimha (1987, p. 128). These two factors were also found to be important to Moekotte. In the financial category, return rate was found to be influential to Moekotte's decision-making, similar to venture capitalists that screen companies for investments (MacMillan et al., 1987, p. 128), (MacMillan et al., 1986, p. 121). Of the category 'products and services', a demonstrated market need of the product or service can often been found in successful companies (MacMillan et al., 1987, p. 128). The resources category holds

two important criteria for Moekotte; potential R&D alliances (not significant according theory) and strong technical capabilities (somewhat influential to firm success (Kakati, 2003, p. 449)). Criteria that Moekotte found important for evaluating the manager leading the new subsidiary into new business opportunities are: the background, experience and track-record of the manager and the founding team size of new subsidiaries. The latter finding is similar to Song et al. (2008, p. 13) who find this to be significantly correlated with firm success. Overall, quite some factors that Moekotte finds important in opportunity evaluation correspond with how successful companies evaluate their business opportunities (Kakati, 2003; MacMillan et al., 1987; Song et al., 2008).

Strengths and weaknesses of the Business Opportunity Evaluation Method

One of the main strengths of the newly designed model is the leanness of the model, which limits the amount of resources required for evaluating business opportunities. This was one of the demands of the problem owner. Another advantage is that by using this model, discussions on business opportunity evaluation become more tangible. Decisions are made in a concrete manner and can be written down, reducing instinctive decisions.

A weakness of the model is that it does likely not apply to other SMEs than Moekotte. In the first research question, criteria for the evaluation of business opportunity specific to Moekotte were investigated. Companies using the model should therefore first consider the criteria included in the model and whether or not they agree with these. The same goes for minimum scores for criteria set in the model. In the practical example of the Business Opportunity Evaluation Method, it was shown that the *strategy-technology firm fit* gate was difficult to use for Moekotte, because the company did not have a strong definition of their own products and services. This can be considered another weakness of the model; the strategy-technology firm fit gate may not be well suited for SMEs.

6.3. Conclusions and managerial implications

By conducting this research, a new alternative to existing models for business opportunity evaluation is available. The model was made specifically for Moekotte's demands; it is both executable without requiring strong investments in time or knowledge and contains business opportunity evaluation criteria that are of interest to Moekotte. Management of Moekotte can use this model to evaluate their current and future businesses opportunities.

Managers of other SMEs may also use the new model for their own evaluation of business opportunities. However, they will need to determine themselves whether or not the model is suited for their own evaluation of business opportunities. If not, they can replace the opportunity evaluation criteria with criteria of their own interest, resulting in a model that is tailor-made for their organisation. The model can also be used as a tool for prioritising; analysing multiple opportunities can show which one is the most attractive for an organisation.

Finally, this article contributes to academic literature by offering a leaner alternative to already existing business opportunity evaluation methods such as the Market Opportunity Analysis. It furthermore provides insight (although limited) in the way SMEs investigate their business opportunities by taking Moekotte as an example for these type of companies.

6.4. Limitations

Determining which criteria to include into a model for opportunity evaluation

The main weakness of this research lies in determining which criteria for business opportunity evaluation from the literature research were included into the new model. This was investigated by interviewing management of Moekotte. The primary goal of this research is providing Moekotte with a lean opportunity evaluation model. A secondary goal is that the model is suited for SMEs who have limited resources available for opportunity evaluation. A quantitative study could increase external validity (generalisability) of the research results to other SMEs which, although not the primary purpose of this research, could have been useful. Feasibility was a major factor in choosing Moekotte as unit of analysis. Within the time available for a master thesis research, it is difficult to set up a quantitative survey over multiple SMEs. Another factor justifying Moekotte's management as unit of analysis, is the fact that they may be considered a type of expert in this area. All interviewees have a career in which they will have evaluated multiple business opportunities, giving them experience on the subject. As units of analysis, Moekotte's management was chosen, using a number of managers of diverse backgrounds as units of observation. Interviewing diverse units within a population adds to validity (Verschuren & Doorewaard, 2007, p. 184).

Literature search for opportunity evaluation criteria

Another limitation of this research is that in the literature review, not all possible evaluation criteria for new opportunities might have been found. Because the academic area of opportunity evaluation is rather limited, criteria were searched in three alternative academic areas; businesses evaluating new products or services, investors evaluating new businesses and evaluation of opportunities by successful companies. This problem was somewhat reduced by including research by Song et al. (2008). Because these authors conducted a meta-analysis, the researcher assumed that their list approaches a high level of 'completeness'. Finally, this problem was reduced more by asking interviewees at the end of every interview whether any criteria did not fit any category in the discussion.

Required minimum scores for business opportunities

The minimum scores that were set for evaluation criteria for business opportunities are subjective. What some analysts may deem acceptable, others may not, resulting in a different analysis, depending on the analyst conducting the evaluation. Companies other than Moekotte who want to use the Business Opportunity Evaluation Method will need to think about the analysts they appoint to conduct their business opportunity analysis. An analyst of the business opportunity need not be the decision maker of minimum scores, but rather an advisor to decisions makers. Conducting the analysis with multiple employees of a company might lead to less subjective findings, or at least to an average of subjective scores.

Interpreting interview results

Yet another limitation lies in the subjective nature of interpreting interview results. This research has used interviews for two purposes; to select which business opportunity evaluation criteria to include in the model and to determine their minimum required scores. The interview results were interpreted by the researcher, lowering internal validity of the research. This problem was attempted to be reduced by using a simple, three-point scale, consisting of the values 'not important',

'somewhat important' or 'must-have'. By constructing the scale in this manner, there is less room for interpretation than compared with scales with many possible values.

6.5. Future research

Generalisability of the new model for other SMEs

A limitation of the current research that holds potential for future research is the low generalisability to other SMES. Specifically, the inclusion of opportunity evaluation criteria from the literature review into the model was based on qualitative research. Future research could investigate whether criteria found important by Moekotte are the same for other SMEs. Another possible future research direction in this direction could be to investigate what criteria are of interest to firms within different industries, sizes, age, geographical areas, nationalities, etc. This could result in certain 'profiles' for opportunity evaluation for different types of companies. Additionally, it may also be possible to research differences in business opportunity evaluation between investors and companies.

Use of the model compared to firm performance

It is interesting to investigate whether the use of the new *Business Opportunity Evaluation Method* has any influence on firm performance, similar to Kakati (2003) who analysed what aspects of a company determine firm success. This may be done using a similar method as Kakati: comparing the use of the Business Opportunity Evaluation Method to survival rate of firms, a few years after new markets are entered. An ideal population for such an experiment could be obtained through portfolios of investors. These organisation maintain contacts with many SMEs, often in a positive relation (likely increasing their willingness to cooperate with such research) and are experienced in evaluating the extent to which companies are successful (long-term survival).

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Appendices

Appendix 1. Evaluation criteria found in academic literature

This appendix describes a part of the literature review process; extracting business opportunity evaluation criteria from academic literature. The criteria were extracted by executing three steps: finding papers that contain evaluation criteria, extracting evaluation criteria from found papers and finally, grouping of these criteria in categories.

In the first step in this process, academic literature was studied by analysing three academic areas; evaluation criteria investors use in new company evaluation, success criteria of companies and evaluation of products or services of companies. Based on these search terms, the following literature was found.

Table 7: literature used for extraction of evaluation criteria

Author	Article
MacMillan, Siegel, and Narasimha (1986)	*Criteria used by Venture Capitalists to evaluate new venture proposals*
Song, Podoynitsyna, Van Der Bij, and Halman (2008)	*Success factors in new ventures; A Meta-analysis*
Kakati (2003)	*Success criteria in high-tech new ventures*
Hart, Hultink, Tzokas, and Commandeur (2003)	*Industrial companies' evaluation criteria in NPD gates*
Mason and Stark (2004)	*What do investors look for in a business plan? A comparison of the investment criteria of bankers, venture capitalists and business angels*

After these papers were found, every article was scanned for possible evaluation criteria. Results are listed in the following tables.

Table 8: Business opportunity evaluation criteria resulting from MacMillan et al. (1986, p. 121): *Criteria used by Venture Capitalists to evaluate new venture proposals*.

Criterion
Is market growth rate significant?
Will the venture stimulate market?
Is the market familiar?
Is there a low threat of competition?
Return equal to 10x investment within 5-10y?
Must investment be liquid?
Investment necessary?
Multiple investments necessary?
Product/service is proprietary or can be protected.
Demonstrated market acceptance?
Already functioning product (no prototype)?
Is product high-tech?

Table 9: Business opportunity evaluation criteria resulting from Song et al. (2008, p. 12): *Success factors in new ventures; A Meta-analysis*.

Criterion
competition intensity
environmental dynamism
internationalisation
low-cost strategy
market growth
scope market
market intensity
Financial resources available
Firm age
Firm size
Firm type
NGO firm support
Patent protection
R&D Alliances
R&D investments
Founding team size
SC integration
product is innovative

Table 10: Criteria from Kakati (2003, p. 449): *Success criteria in high-tech new ventures*.

Criterion
Strong managerial capabilities
Strong technical capabilities
Strong marketing capabilities
Strong input sourcing capabilities
Related horizontal and vertical scope of new product
Meso CSF's set by dominant competitors

Table 11: Criteria from Hart et al. (2003, p. 28): *Industrial companies' evaluation criteria in NPD gates*.

Criterion
customer acceptance
customer satisfaction
sales objectives
sales growth
market share
sales in units
break-even time
profit objectives
IRR/ROI
Margin
stays within budget
introduced in time
product performance
quality
time-to-market
product uniqueness
market potential
marketing chance
technical feasibility
intuition

Table 12: Criteria from Mason and Stark (2004, p. 239): *What do investors look for in a business plan? A comparison of the investment criteria of bankers, venture capitalists and business angels*.

Criterion
Background, experience and track-record of entrepreneur
range of skills or functions of the management team
Overall concept and strategy of business
Issues associated with production process are handled
Product or service is unique, distinctive, and innovative.
product or service; quality and performance
Product service; ergonomics, function and flexibility
Market potential
market growth
demonstrated market need
level/ or nature of competition
barriers to entry
financial structure of business
value of equity or worth of business
likely rate of return and exit route possibilities
relationship between investor's background, skills and knowledge of industry market tech, etc. and investment opportunity
investor's preferences (industry, market, etc. that investor wants to be in)
Overall business plan.

Literature agrees to some extent on many opportunity evaluation criteria, as many of the criteria mentioned in papers overlap. The criteria were grouped within the categories market, finance, product or service, resources, experience of managers or entrepreneurs, forecasts and other. These groups cover all criteria found and resulted in the following table.

Table 13: grouped business opportunity evaluation criteria

Market	Finances	Product or service	Resources	Experience of managers or entrepreneurs	Forecasts	Other
significant market growth	Return equal to 10x investment within 5-10y?	Product or service is proprietary or can be protected.	SC integration	Background, experience and track-record of entrepreneur	customer acceptance	Overall business plan.
Will the venture stimulate market?	Must investment be liquid?	product's market potential	R&D Alliances	range of skills or functions of the management team	customer satisfaction	Overall concept and strategy of business
Is the market familiar?	Investment necessary?	Already functioning product (no prototype)?	Strong managerial capabilities	Founding team size	sales objectives	
market intensity	Multiple investments necessary?	product is innovative	Strong technical capabilities		sales growth	
internationalisation	Financial resources available	product introduced in time	Strong marketing capabilities		market share	
low-cost strategy	NGO firm support	product performance	Strong input sourcing capabilities		sales in units	
scope market	financial structure of business	product quality	Related horizontal and vertical scope of new product		break-even time	
CSF's from macro analysis	likely returns and exit route possibilities	product time-to-market	value of equity or worth of business		profit objectives	
CSF's from meso analysis	investor's background, skills and knowledge of industry, market, technology, etc. and opportunity	product uniqueness			IRR/ROI	
Meso CSF's set by dominant competitors		technical feasibility			Margin	
marketing chance		Issues associated with production process are handled Product or service is unique, distinctive, and innovative. product quality and performance Product ergonomics & function demonstrated market need			stays within budget	

Appendix 2. Interview results

This appendix describes interview results of the first research question (*Which criteria for business opportunity evaluation should be included in a model of opportunity evaluation specific to Moekotte?*).

Interviews were conducted in semi-structured form, using open questions. Open-ended questions were chosen because closed questions have the disadvantage that the interviewer cannot expand on subjects, which is interesting to this research. Another reason for choosing open questions over closed questions is that there is no need for uniformity among multiple respondents. Audio of interviews was recorded with permission of the interviewees to provide the interviewer with a point of reference.

In the interviews, categories for opportunity evaluation criteria were first described to the interviewees, based on the literature review. Then, an in-depth discussion of every category was held, asking interviewees for criteria within these groups. This approach has the advantage of giving the interview some structure, but biases their answers to a lesser extent by not naming any criteria, only their categories. After criteria were discussed by the interviewee, they were asked for their importance (the weight the criteria have in their decisions). Their answers were afterwards scored by the interviewer with one of three values; 'not important', 'somewhat important' or 'must-have', depending on the reaction of the interviewees. Not mentioned criteria were considered irrelevant or not applicable. After every interview, subjects were asked for any criteria that may fall outside the categories that were discussed. The following tables provides an overview of the scores of the interview.

Table 14: Interview results. Scores range from 1-3 (three is highest).

Category	Criterion	Managing director	CEO	CTO	Considered significant
Market	significant growth	3	3	2	x
	Stimulated by venture	2	1	1	
	Familiarity	3	3	1	x
	Intensity	3	3	1	x
	internationalisation	1	2	1	
	low-cost strategists present	3	3	3	x
	scope market	1	1	1	
Financial	Return = 10x investment < 3-10y	3	3	1	x
	investment required	2	1	1	
	liquid investment	2	1	1	
	multiple investment	2	1	1	
	resources available	3	1	1	
	NGO support	1	1	2	
	financial structure	1	1	1	
	return rate and exit routes	1	1	1	
	investor and knowledge of industry, market, tech, etc.	1	1	1	

Table 15: Interview results (continued). Scores range from 1-3 (three is highest).

Category	Criterion	Managing director	CEO	CTO	Considered significant
Product or service	proprietary or protectable	1	1	1	
	market potential	2	1	1	
	already functioning	2	1	1	
	innovative	2	2	1	
	introduced over time	2	1	1	
	performance	1	1	1	
	quality	1	3	1	
	time to market	2	1	1	
	uniqueness	2	2	1	
	technical feasibility	2	2	1	
	issues in production handled	1	1	1	
	unique, distinctive &innovative	1	2	1	
	quality, standards and performance	3	2	3	x
	ergonomics, function and flexibility	1	2	1	
	demonstrated market need	3	2	2	x
Resources	SC integration	1	1	2	
	R&D Alliances	3	2	2	x
	Managerial capabilities	3	1	1	
	Technical capabilities	2	3	3	x
	marketing capabilities	2	2	1	
	input sourcing capabilities		1	1	
	related scope (horizontal and vertical)	2	2	2	
	equity value	1	1	1	
Experience of managers or entrepreneurs	experience & track-record	3	3	3	x
	Skills or functions range	2	1	1	
	team size	2	2	2	

Table 16: Interview results (continued). Scores range from 1-3 (three is highest).

Category	Criterion	Managing director	CEO	CTO	Considered significant
Forecasts	customer acceptance	2	1	2	
	customer satisfaction	2	1	2	
	sales objectives	2	1	1	
	sales growth	1	1	1	
	market share	2	3	3	x
	sales in units	1	1	1	
	break-even time	2	2	1	
	profit objectives	1	1	2	
	IRR/ROI	2	3	1	
	Margin	3	3	2	x
	stays within budget	2	1	1	
Other	business plan	2	1	1	
	Overall concept and strategy	2	1	1	
'Added' factors	process knowledge of customer desires	3	1	1	
	user functionality knowledge	2	1	1	
	quality experienced by end users	2	1	1	
	technical quality	2	1	1	
	flexibility of product or service	2	1	1	

Results per category for opportunity evaluation

The following tables show more in-depth results of the interviews per criteria. For every criteria that was discussed in the interview, the comments that the interviewee made are displayed.

Table 17: Detailed interview results of market criteria

Criterion	Managing director	CEO	CTO
significant market growth	Related to continuity, a very relevant factor for Moekotte. Synergy also related to this factor.	must-have	A shrinking industrial IT market is the main reason this opportunity is evaluated at all. However; not scared to enter shrinking market
Will the venture stimulate market?	Significant because it shows customers that Moekotte can offer not only lose products but also solutions that integrate multiple areas of expertise.		
Is the market familiar?	Must-have. Market familiarity is one of the most decisive factors for making market decisions on.	As long as nothing is known about the market, not interesting to consider entering.	
market intensity	Must-have. If the market is extremely intensive, Moekotte would not enter it. Another aspect is that some competitors are colleagues; some projects are too large for Moekotte to handle alone (in all of Moekotte's industries).	Many competitors already present, leading to lower confidence in market.	
internationalisation	No issue at all.	Non-issue, no present plans at this moment and not much thought is given to it.	
low-cost strategists	This factor is for Moekotte strongly related to continuity. Low-cost competitors create less interesting markets.	Low-cost strategists; do not enter the market per definition. Bad experience with utility building market.	low-cost strategists in the market strongly decides whether to enter due to already obtained experience with utility building market
scope			

Table 18: Detailed interview results of financial criteria

Criterion	Managing director	CEO	CTO
Return equal to 10x investment within 5-10y?	5-10 years is somewhat long, shorter would be a more accurate measuring timeframe. Synergy would lead to more difficult measurement	3 years max before return equal to investment	
Investment necessary?	Not too high but also not too low; if too low, many people can start a new venture in the industry. Too high and it is not interesting anymore for Moekotte	Non-issue, even 'necessary evil' via investing in knowledge or 'buying in' the market	Non-issue as long as some perspective of profits is there.
Must investment be liquid?	Often already is according to Moekotte. More liquid can be positive in some cases, as the price becomes more concrete	Non-issue	Non-issue
Multiple investments necessary?	An investment over time is more important to Moekotte. The company would like to avoid opportunities where heavy investments have to be made in a very short time span.		
Financial resources available	Necessary for Moekotte because in many markets it operate in, a slow start is not possible (strong investments are necessary).		
NGO firm support	Not so important but nice to have. On long-term, it would be better to be self-sufficient. Moekotte also finds it unbalances organisations. Also invites to 'laziness' for organisations.		Nice to have
Financial structure of business	Non-issue for Moekotte; it will be the same as the already existing organisations.		
Likely rate of return and exit route possibilities	Not that significant because often, if thing go wrong, employees can be placed elsewhere within Moekotte. Image damage is an issue however (has been in the past).	Not really an issue (Rob did not elaborate further when discussing it)	
Relationship between investor's background, skills and knowledge of industry, market, technology, etc. and investment opportunity	Not that significant as company only invests in opportunities that are related to core business. In addition, there are low investments necessary.		

Table 19: Detailed interview results of product or service criteria

Criterion	Managing director	CEO	CTO
Product or service is proprietary or can be protected.	Not that significant because almost everything in Moekotte's industry (including new sub-industries) are services.		Non-issue; in these markets it is impossible due to nature of products (software). Actually providing source code leads to SCA more than trying to protect it.
product's market potential			
Already functioning product (no prototype)?	Elementary knowledge is often necessary for starting first projects in electrical engineering.		No influence at all; only start developing when demand is there.
product is innovative	Necessary for obtaining a competitive advantage according to Moekotte.	More for products, not services, but building automation is difficult	No influence at all. As long as there is market, acceptance it is ok.
product introduced over time	Not too long, not too short would be good because setting up a new department or organisation requires some time for internal changes.		
product performance	N.A. Product performance is almost never measured in the same criterion; technical specifications, user experiences, prices, etc. Therefore impossible to measure.		
product quality	N.A. Same as performance; should be differentiated into smaller factors. A more important factor is the extent to which product advantages can be communicated to customers.	Important because interviewee repeatedly stated that without good quality (and image that is associated with it), no serious attack can be made upon larger competitors	
product time-to-market	Important because of the costs associated with a first project. Half a year would still be acceptable for Moekotte.		
product uniqueness	Somewhat compensated by entrance barriers.		
technical feasibility	Less applicable with services (most things Moekotte offers). If product or services are less feasible, Moekotte is still interested if it would lead to synergy with other parts of the company.	None issue, technical feasibility already proven for markets Moekotte considers.	

Table 20: Detailed interview results of product or service criteria (continued)

Criterion	Managing director	CEO	CTO
Product or service is unique, distinctive, and innovative.	Less relevant in market. Competitive advantage comes from process knowledge or the way in which code is written.	Competitive advantage better gained from other traits of Moekotte	
product or service; quality, and performance	Very important, but can be split up into smaller factors, such as experience of the customer		Quality is important but performance and appearance do not apply in this market.
Product service; ergonomics, function and flexibility	N.A. Moekotte has no products, merely services.	Nice for private people, but whether companies are willing to invest is less certain	
demonstrated market need	Must-have.; can be found in other companies. Moekotte is not interested in starting new products or services that spark new markets.	None issue, market need already present before beginning to consider market opportunity.	

Table 21: Detailed interview results of resource criteria

Criterion	Managing director	CEO	CTO
SC integration	n.a. supply chain does not apply in service market that Moekotte is in.	Did not discuss, but however did state that developing own system is not really an option.	Pretty important for gaining of knowledge (training). However much can be obtained through trainings freely available.
R&D Alliances	Suppliers (especially of software protocols for building automation etc) are important as knowledge of product and software-updates depend heavily on them. Specialisation of one technique is important.	If possible, it would be nice, but chances of success are pretty low.	Pretty important (same reasons as SC integration)
Strong managerial capabilities	Most important element within company according to managers. Less important for steering software developers, but many factors depend upon it, including guarding process against over-engineering, time management, etc. End-responsibility lies with managers. Importance of 'fitting' type of manager vs. development phase of company also came to mind.		
Strong tech capabilities	Technical capabilities are starting point for this market, making personnel training an important aspect for Moekotte.		Important. Currently strong point of Moekotte
Strong marketing capabilities	Important for synergy (noticing opportunities for synergy in projects). Will have to be developed during a slow start (as opposed to investing in this by hiring employee with knowledge already). Important aspect as sales depends heavily upon it. Difficult to find right people (that are strong in both technical and managerial capabilities), which is important for Moekotte.	Would be very nice to have, currently not the most strongly developed element of Moekotte	
Strong input sourcing capabilities	n.a. No input sourcing in Moekotte.		
Related horizontal and vertical scope of new product (synergy)	Both horizontal and vertical are important (both equally important).	Nice to have'.	Nice to have. There is always some overlap in the markets currently served.
value of equity or worth of business	No goal in itself, success for Moekotte depends more on factors such as continuity.		

Table 22: Detailed interview results of experience of managers or entrepreneurs criteria

Criterion	Managing director	CEO	CTO
Background, experience and track-record of entrepreneur	Important because Moekotte is looking for a 'slow start', no extreme investments, but slowly building the new part of the organisation. Also explains why company prefers someone from the inside who can lead the new organisational part.	Best person for the job would be someone who has at least 10 years of experience in the market.	One of first points that came to mind of interviewee
range of skills or functions of the management team	Must be both technical and commercial. Technical because the roles of cold acquisition is not for the manager or entrepreneur.		
Founding team size	must be growing to about 5 employees (a few specialists)	Reasonably important because of investments	Reasonably important; after a single sales person has obtained some projects, engineers need to be hired.

Table 23: Detailed interview results of forecast criteria

Criterion	Managing director	CEO	CTO
customer acceptance	B2b markets are important. The subject raises the question; who is the end-customer. According to Moekotte, this is the customer behind the organisation that potentially could provide Moekotte with projects. The building industry is mentioned as a not interesting customer.		Important but not most-have.
customer satisfaction	Again, end customers are more important than other customers are.		Important but not most-have
sales objectives			Not important to Moekotte at all. Measuring customer desire is much more important. As long as the company profits equal inflation, Moekotte is happy.
sales growth	Sales growth not that important, no indicator for long-term success. Inflation is only factor that would be somewhat important in this aspect.		same as sales objectives
market share	Not that important, market share is not a factor Moekotte uses. The same goes for the long-term, in this case internal factors (such as number of employees) would be used to judge success.	Very important, currently one of the main problems with the building automation market	Number of projects important as there is a minimum level required to set up a new subsidiary.
sales in units	n.a., Moekotte has no products.		
break-even time	Difficult to measure or calculate, as synergy could increase or decrease it greatly.	3 years, reasonably important	
profit objectives	Not a target on itself.		Less important as long as it follows the market in % increase or decrease.
IRR/ROI	Does not have to be high, returns in other aspects than financial are desired as well.	Important, no IRR for competitors means no IRR for Moekotte	
Margin	Important, also throughout the entire group, not just of one department. What is specifically mentioned as not a good strategy is what the interviewee calls 'the American model' in which margin targets are pushed at all costs. Customers look at margins too, potentially leading to image problems.		Only starts becoming important after a few years. Industrial IT market is about 3 - 4%. Building automation market is not known yet. Even when margin is very small, still acceptable.
stays within budget	Must be acceptable, but no hard budget agreements will be made (fits within culture of SME).		

Table 24: Detailed interview results of criteria not fitting within any other category

Criterion	Managing director	CEO	CTO
Overall business plan. Overall concept and strategy of business	Important but not in the form an investor might expect, more for internal use towards employees starting the SBU.		

Appendix 3. Practical case of the Business Opportunity Evaluation Method

This appendix shows the Business Opportunity Evaluation Method in practice for a business opportunity that Moekotte faced; the building automation industry. This was presented as a product to Moekotte at the end of the assignment, to provide them with a practical example of how to use the *Business Opportunity Evaluation method*.

The document has received some small changes from the version that was delivered to Moekotte. In some parts, the use of the Business Opportunity Evaluation Method differed somewhat from the way it was described in the main text of this thesis. This because it was sometimes not possible or feasible to conduct the analysis in that way. This is interesting from an academic point of view; it shows what parts of the model works well and what parts work less well. A reflection on these changes is given in chapter 5 of the main text of the thesis.

The report opens with the management summary as it was presented to Moekotte. Then a short introduction is given of the *Business Opportunity Evaluation Method*. The next chapters step through all stages and gates of the model. Finally, an overview of pros and cons of the business opportunity is presented, along with a conclusion and managerial advice.

1. Management summary

This document is part of the industrial placement of student René Bolt, as part of the study MSc in Business Administration at the University of Twente. In the industrial placement, two main products were developed; firstly, the development of a model for the evaluation of business opportunities and secondly, an analysis of the business opportunity *building automation* using the new model. This document describes the latter product.

The model specifically developed for the analysis, the *Business Opportunity Evaluation Method* analyses the macro-environment of the business opportunity, the product or service of the business opportunity, the market, forecasts of the market and aspects of the opportunity itself (finances and required resources).

In the environmental analysis, six dimensions are analysed; demographics, economics, social and cultural factors, technology, ecological and political factors. Overall, positive factors outweighed negative factors (10 to 6). The most important positive factors are increasing demand for building automation systems and well-developed technological standards. The most important negative factors are the slowly recovering economy and low consumer trust.

In the product or service phase of the analysis, an inventory was first made of all available industrial standards that Moekotte might choose to adopt as core technology. Market share, technological capabilities, robustness, openness and availability of these standards were investigated. The highest-scoring systems are KNX, Z-wave and NiKo.

The market phase of the analysis evaluated customers, competitors and suppliers in the market. Moekotte already has some potential customers in their existing portfolio and potential new customers seem to be available. The three main competitors of Moekotte (Cofely, Croon and Imtech) area already (somewhat) present in the building automation industry. Although they have a head start, their subsidiaries seem not that far developed yet, allowing for Moekotte to quickly catch up with them. Another important competitor factor is that the three main competitors are currently performing medium (Croon and Cofely) or even bad (Imtech) from a financial perspective. Moekotte may use already existing suppliers for their hardware requirements in building automation.

Some forecasts regarding the market were made based on interviews with colleagues. Most of the forecasts have a positive outlook (sales growth, industrial barriers to keep competitors out, untapped market segments available and complementary strength from new products).

In the market opportunity evaluation, finances and resources were analysed. Financial forecasts were made based on interviews with colleagues. Probable costs and probable returns were estimated in a three-case scenario (negative, neutral and positive). The goal was not to gain a detailed financial look, but to make some predictions of the most influential financial forces of the business opportunity. These are: major costs of the first year will resolve around marketing of the new opportunity, initial return rates will depend strongly on time needed to find a first project, the first year will likely not be profitable, after a few years the opportunity will likely be profitable and finally, no direct investment is necessary (as most initial costs come from personnel expenses). Required resources are not problematic; most of them are already present or can be obtained (e.g. knowledge about the development process, possible customers, etc.).

Taking all analysed aspects into account, the business opportunity seems interesting. However, researcher bias may have made the analysis too optimistic, a factor known from academic literature. Nonetheless, the researcher advices Moekotte to enter the new market. Of the present business opportunities Moekotte currently faces, it is very likely the most attractive one.

2. Introduction

This document describes an analysis of the building automation market for Moekotte as part of the final thesis project of René Bolt. The thesis project was split into two parts; an academic aspect, focussing on developing a tool for the analysis of business opportunities and a practical aspect in which the tool was used to analyse Moekotte's current business opportunity; the building automation industry.

3. Tool for analysing business opportunities

Before analysing an industry's attractiveness, a method for evaluation is required. The *Business Opportunity Evaluation Method* (BOEM) is specifically designed for this purpose.

3.1. The Business Opportunity Evaluation Method

The model is formulated as a stage-gate model; stages are information-gathering phases, whereas in gates, criteria for business opportunities are evaluated. Once information is gathered during a phase, it is tested in evaluation gates, which contain criteria. Together, these determine the attractiveness of the industry.

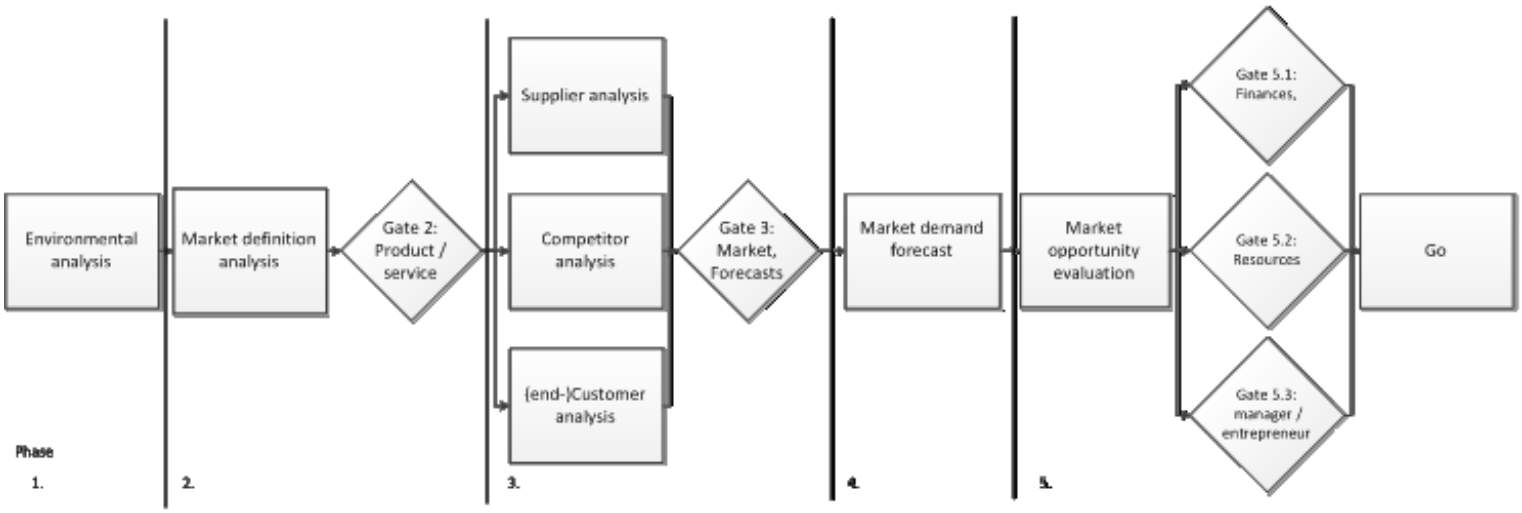

Figure 7: The Business Opportunity Evaluation Method

During stages, information is not only gathered so that may be used in gates, but also for informative purposes (to get a broad idea of the market).

The first stage (the environmental analysis stage) conducts a macro analysis of the global surroundings of the organisation. The purpose of the stage is to explore the new market opportunity and define the macro environment of it, in terms of end users, products or service offering and geographical area. This stage does not contain a gate because it is meant as an explorative stage.

In the second stage, the opportunity's product or service and the accompanying market(s) are identified and defined. Markets need only be defined, not yet analysed in detail, as this will occur

during the third stage. The accompanying gate of this stage analyses the quality and performance or the product or service and the extent to which the product or service has already demonstrated its market need.

If the product or service gate is passed, the analysis moves to the analysis of the market. In this third stage, the organisation researches the defined market in terms of suppliers, competitors and (end-) customers. Possible methods of data collection is through experts (both outside and inside the company), or via financial investors (such as banks). In the market gate, a number of aspects of the market are analysed; market growth, the company's familiarity with the market, market intensity and the extent to which low-cost strategists are already present in the market.

In the fourth stage, two forecasts are made; potential market share and the margin of the new product or service. No real minimum score was set (all scores are acceptable), due to the difficulty of predicting forecasts. Rather, it serves more as a method of increasing the knowledge of the market opportunity.

The market opportunity evaluation stage analyses a number of overall aspects of the opportunity, both internal and external. Three aspects are researched; financial, resources, aspects of the manager leading the new subsidiary or department into the new opportunity. The category finances analyses potential return within the first few years of the new business opportunity. The resources category investigates R&D alliances and technical capacities of the company.

The *Business Opportunity Evaluation Method* normally includes another gate in the opportunity evaluation stage; the *strategy-technology firm fit*. This model was left out in this practical analysis, because the model proved to be unworkable within Moekotte. This is due to the fact that the model desires clear products and services as input, something which is impossible within Moekotte. The company evaluates incoming orders individually, analysing whether or not necessary knowledge and skills are available within the company. If so, the order is executed, if not, it is declined. This makes for a rather vague definition of offered products and services of the company, resulting in the difficulties with the strategy -technology firm fit model.

3.2. Evaluation criteria in gates

Every gate contain a number of evaluation criteria. These factors decide the attractiveness of the industry and are described in the following table.

Table 25: Criteria in the Business Opportunity Evaluation Method

Gate	Important criteria to Moekotte	Possible values	Minimum score required for passing gate
2: Product or service	Overall quality and performance	High, medium, low	High
	Demonstrated market need	High (already proven), medium (not yet proven but good expectations), low (not yet demonstrated and bad expectations)	High
3: Market	Market growth	Positive, neutral, negative	Positive
	Market familiarity	High (familiar with target market), medium (familiar with a related market), low (unfamiliar with target market).	High
	Market intensity (lower is better)	Low (Schumpeter Mark I), high (Schumpeter Mark II industry)	Low (maximum score)
	Extent to which low-cost strategists are already in the market (lower is better)	High (> 10 major low-cost strategists known in market), medium (> 5 major low-cost strategists known in market), low (< 5 low-cost strategists known in market)	Medium (maximum score)
4: Forecasts	Expected market share of new subsidiary	High, medium, low	n.a.
	Expected margin of new product or service	High, medium, low	n.a.
5.1: Financial factors	Return rate after 5 years	Negative, neutral, positive	Neutral
5.2: Resources	R&D Alliances	Very high (already formed), high (likely possible to be formed), low (not likely to be formed, very low (impossible to be formed).	High
	Technical capabilities	High (already familiar with technology), medium (familiar with similar technologies), low (unfamiliar with technologies)	Medium
5.3: Experience of managers or entrepreneurs	Background, experience and track-record of manager of new subsidiary	High (> 10 years), medium (< 10 years), low (< 5 years).	High

When all of these gates are passed, the business opportunity is assumed to be acceptable to Moekotte's management. If in any of the gates, a criteria is found to be unacceptable, the resulting advice regarding the business opportunity that follows the analysis should be negative.

A gate that was not passed does not necessarily mean that the analysis should stop at that point. Some criteria can be worked on (such as technical knowledge, which can be increased over time), making it possible to pass a gate at a later point in time. Failed gates can thus be seen as improvement criteria that should be worked on before re-evaluating the gate and considering to execute the business opportunity. Should gates fail that cannot be influenced by Moekotte or that are unfeasible to repair, the business opportunity should be abandoned.

4. Environmental analysis

The environmental analysis focusses on the macro part of the business opportunity. It describes powerful and long-term factors that influence the company, either on a national or global level. Factors described in this chapter influence the company, but cannot be influenced by the company. Dimensions of the macro environment that can be discussed are demographic, economic, social-cultural, ecological and political dimensions (Oostra & Slaa, 2006), often called DESTEP factors. The goal in this phase of the model is not to test the environmental factors for a minimum score, but to gain insight into the forces that govern the business opportunity.

4.1. Demographic

The aging of the Dutch population likely results in a lower demand for new buildings over the coming years. A major potential new customer of Moekotte in the building automation is the utility building market. This target group will likely have less orders for Moekotte as long as there is a lower demand for utility buildings.

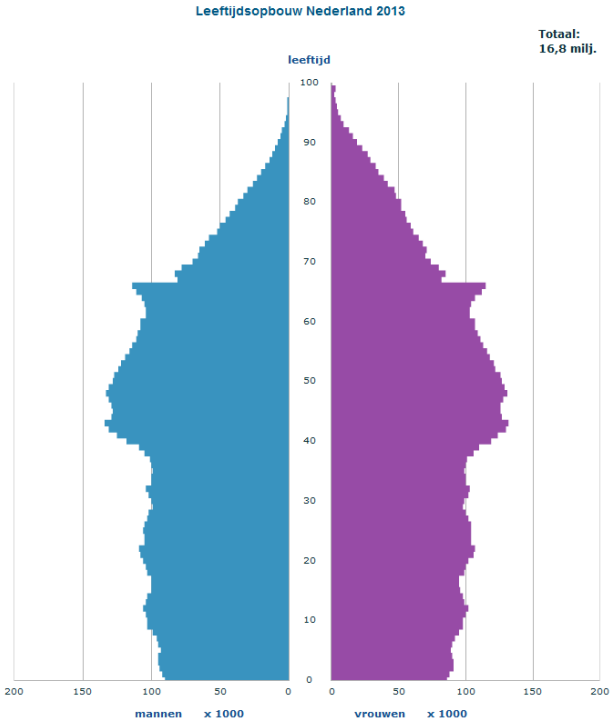

Figure 8: Age pyramid for the Netherlands (2013) Reprinted from Centraal Bureau voor de Statistiek (2013b).

Alternatively, aging of the population could also results in a different opportunities in the building automation market. Stronger demand for buildings customised for seniors can be expected, possibly including more demand for building automation devices (especially in heating, ventilation and air-conditioning).

A demographic trend specific to the electrical engineering branch, is that of a shortage of technically educated personnel. In 2016, the Dutch economy will have a shortage of 155.400 technically educated people (61.000 lower educated, 58.000 middle educated and 35.500 highly educated people) (Researchcentrum voor Onderwijs en Arbeidsmarkt, 2011). If Moekotte is to enter the building automation market, this problem has to be solved to a reasonably extent.

4.2. Economic

As of this writing (April 2014), the global economy (including the Dutch economy) appears to be somewhat recovering from the global financial crisis. The crisis has severely limited financial possibilities of companies, thus also limiting Moekotte's customers. Moekotte has thus far not yet suffered heavy consequences of the financial crisis. This means that one of Moekotte's strengths is the survival in heavy economic times, something not all competitors in the electrical engineering industry can say. A relevant development is that competitors may be weakened by the crisis, resulting in either more safe or more risky strategies (this can be both positive and negative).

The nature of electrical engineering (automating certain aspects of work) allows for a strong sales argument. This is because economic cuts are often implemented using IT solutions. However, willingness to invest is often low in many of the industries (Rabobank, 2013a).

As Moekotte is active only in business-to-business (B2B) industries, entrepreneur confidence is an important factor for deciding attractiveness of an industry. It expresses entrepreneurs' expectations for business activity and their amount of orders. Since the end of 2012, this indicator has been increasing slowly (Centraal Bureau voor de Statistiek, 2013b), a positive development for Moekotte.

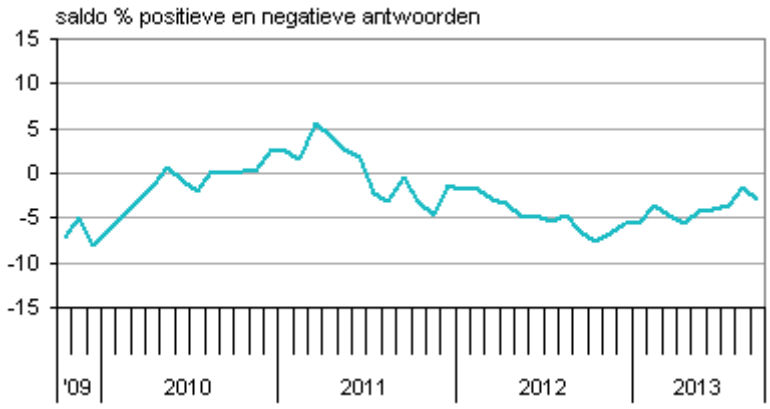

Figure 9: Entrepreneur confidence from 2010 to 2013. Reprinted from Centraal Bureau voor de Statistiek (2013b).

Customers of Moekotte are often relatively 'lower' down the value chain and are thus located more closely to B2C markets. Their results are likely volatile to economic factors that affect consumers. One of the most important factors in this area is consumer trust, which has been slowly recovering over the last year. Although recovering, the current level of trust remains quite low.

Figure 10: consumer trust from 2010 to 2013. Reprinted from Centraal Bureau voor de Statistiek (2013a)

A clear difference can be observed between companies and consumers. Both show about the same directions of trends (e.g. a drop in the middle of 2011, stabilisation after that). However, the strength of these trends are different; companies are less pessimistic (ranges are from +5 through -5) than consumers (+2,5 through -45).

A sector heavily affected by the global financial crisis is the (utility) building industry, a potential customer for the building automation industry. The building industry does not appear to be recovering in 2013. Rabobank trends predict that the industry will shrink 5% over 2013 and that many organisations are running low on financial reserves. In 2014, the market is expected to recover somewhat (0,5%), especially in construction of new buildings (as opposed to renovation) (Rabobank, 2013b, p. 2). This growth is not reliable however; before 2015, no stronger growth is expected according to the Rabobank.

A more long-term development is that of industrial production organisations moving away from first world countries towards third world countries. This is especially true for heavy or product development industries, which are major customer groups of Moekotte (subsidiary *industrial IT*). In the long run, this might affect the amount of work for companies such as Moekotte that are suppliers to industrial producers.

4.3. Social- cultural

A social-cultural shift that is currently affecting Moekotte is the increased overall demand for certification. This is noticeable in customer demands throughout all sectors, which often desire certification of their suppliers. (Semi-) government customers are a noticeable group of customers in this category. Their demand for certification has increased strongly over the last years, leading to a potential increase in demand for building automation systems.

Another important social-cultural changes that is currently occurring is an increased demand for more ‘green’ and durable technology. This leads to some changes in technology, ecology and politics (policy). This leads to an increase in demand for building automation systems.

Additional change in social-cultural factors is that of an increasing demand for building automation technologies by end-users. Buildings have historically become more luxurious over time, as can be seen by the introduction of matters such as improved isolation etc. This too leads to an increase in demand for building automation systems.

4.4. Technology

The electrical engineering market can be seen as quite stable, especially with regard to the systems and standards used in the market. Industrial ICT, civil engineering, panel- and module construction and building automation are relatively conservative markets in which proven technologies are an important demand.

There are some aspects that are changing however, such as the so called development of the 'internet of things', meaning that more and more devices get connected to the internet. This trend can also be observed in the building automation market (Rabobank, 2014). More and more protocols allow communications over Ethernet or even remote access over internet. Customer desires also change in this aspect; internet access to building automation systems is rapidly becoming a desire of consumers now and even more so in the future. An increase in demand for access from mobile devices is a closely related development. This trend results in an increase in building automation systems.

A related trend is the growing importance of security. This element should be considered when developing software in the building automation industry, as security has not been a priority in many protocols and standards used throughout the industry, possibly resulting in low experience with this subject.

Technology for building automation has been around some time (well over 30 years), but has not been exploited commercially to a large extent. This can partially be explained due to the low acceptance of utility building organisations, but also due to slow demand of end-customers. This factor can thus be interpreted as either positive or negative.

4.5. Ecological

More and stronger demand, laws and policies for green technology are a trending topic, leading to more demand in building automation systems, especially in regard to technologies such as smart energy grids.

4.6. Political

As described above, durability and more energy efficient technologies are important factors, partially because there is an increase in laws and policies in this area. The same goes for certifications; many new laws ensure that companies , (semi-) governmental organisations and non-governmental organisations (NGO's) increase their demand for their customers' certification. This means that companies such as Moekotte have to increase their level of certification over time.

4.7. Overview of environmental influences on building automation

Table 26: Overview of the most influential factors in the environmental analysis

Category	Positive	Negative
Demographic	Stronger demand for modification of existing buildings due to aging of population	Lower demand for (new) utility building due to aging of population Shortage of technically educated personnel
Economic	Crisis hardly affected Moekotte. IT solutions can be sold well (often induce cost-saving) Entrepreneur confidence is slowly increasing	Economy is slowly recovering from crisis Customer trust is low. Utility building extremely weak
Social-cultural	Increased demand for certification, potentially more demand for building automation systems. Increased general demand for more green technologies and building automation technology	
Technology	Very stable market Increased demand for internet of things and security could lead to increased demand for building automation systems. Well-developed technology in building automation, but (not yet strongly) exploited.	
Ecological	Increased demand for greener technologies such as building automation (especially smart grid systems).	
Political		Increased demands on companies to certify
Total	**10**	**6**

There are more positive than negative macro factors at work currently affecting Moekotte and the building automation market. The strength of these factors is only somewhat outweighed by one major negative macro factor; the slowly recovering economy as a result of the financial crisis. Although Moekotte may suffer difficulties in new markets due to this factor, competitors will suffer from the same problem, levelling the field somewhat. Overall, it can be concluded there are currently not many major negative macro factors that have a strong influence in the building automation market for Moekotte. There is no gate in the *Business Opportunity Evaluation Method* belong to this stage.

5. Market definition

Defining the target market of the business opportunity is the second step in the *Business Opportunity Evaluation Method*. The market is only defined, not tested.

Moekotte is already active in the electrical engineering market, specifically in the sub-markets; *industrial ICT and automation*, *civil engineering and utility building and electrical engineering* and *panel- and module construction*. The new business opportunity (the building automation industry) fits best within the category *industrial ICT automation*. The following table describes main markets and sub markets of Moekotte. The list was constructed based on interviews with Moekotte's managing director and product experts of the engineering department.

Table 27: Moekotte's markets

Main market	Sub-market
Industrial ICT / automation	
	PLC controllers
	SCADA systems
	Hardware engineering
	Data – IT installations
	Business opportunity: building automation
Civil engineering / utility building / electrical engineering	
	Industrial installations
	Energy distribution
	Security installations
	Inspection and energy advice
Panel- and module construction	
	Control panels
	Power supply boxes for ship wharfs

The building automation industry is concerned with automating buildings (housing, office or industry). However, there is no 'hard' definition of the industry, as many organisations disagree on what areas are included and which are not. The building automation market may be defined along a number of customer desires. These include (but are not limited to); lightning, security, heating, ventilation & air conditioning (HVAC), room automation energy management (including alternative energies) and water systems. Customer desires will be discussed in more detail in a later chapter of this analysis.

The market may also be defined along the geographical dimension. The provinces of the Netherlands that Moekotte wants to be active in are the north-east provinces; Overijssel, Groningen, Drente, Friesland and Gelderland (based on interviews with the managing director).

6. Product or service analysis

6.1. Definition of product or service

Before it is possible to analyse a product or service, Moekotte must make one important decision in the business opportunity; which core technology they will specialise in. In the case of the building automation industry, this comes down to choosing an industrial standard. Most building automation industrial standards are displayed in the following table.

Table 28: Available building automation industrial standards.

BACnet	GIA	OpenTherm
BeNext-iHome	Greenwave Reality	OpenWebNet
BTicino My Home	HomeWizard	Plugwise
Control 4	Insteon	Profibus
Creston	Klik Aan Klik Uit	Qbus
DALI	KNX	S-Bus
Dash7	LEMN	Velbus
Duotecno	LonWorks	VSCP
Dynet	Mi Casa Verde	X10
E-Domotica	Midac	Zigbee
Eltako	NiKo Home Control	Zipato
EnOcean	ONE Smart control	Z-wave
Fibaro	OPC	

Adapted from Wikipedia.org (2014) and Domoticavergelijken.info (2014)

Note that this table describes industrial standards in building automation, not hardware products. It is important to differentiate between the two when deciding on which system to adapt as core technology. Industrial standards can be implemented by one or more hardware manufacturers and provide the basis for communications between hardware. One standard may thus be used by multiple brands.

Market share of industrial standards

There are multiple factors that are important to consider when choosing an industrial standard. One of the more important ones is the distribution of the available systems. Market share is important because it will strongly influence demand. Moekotte has also expressed the desire to gain some insight into these numbers. The stage belonging to this phase of the model will also test the market share of the system, requiring that this information is gathered.

Unfortunately, there are no known sources for market share of building automation systems available in public information sources. However, the website Domoticavergelijken.info (2014) provides a list of Dutch suppliers of building automation systems in the Netherlands. The site provides a self-enrolment system for companies in which they may add their areas of expertise and the systems they use. This database can be considered a random sample of building automation systems and may be used to make a rough estimation of the market share of building automation

standards. 104 companies were enrolled in the website at the time of writing (31-3-14). The following figure shows the distribution according to the data.

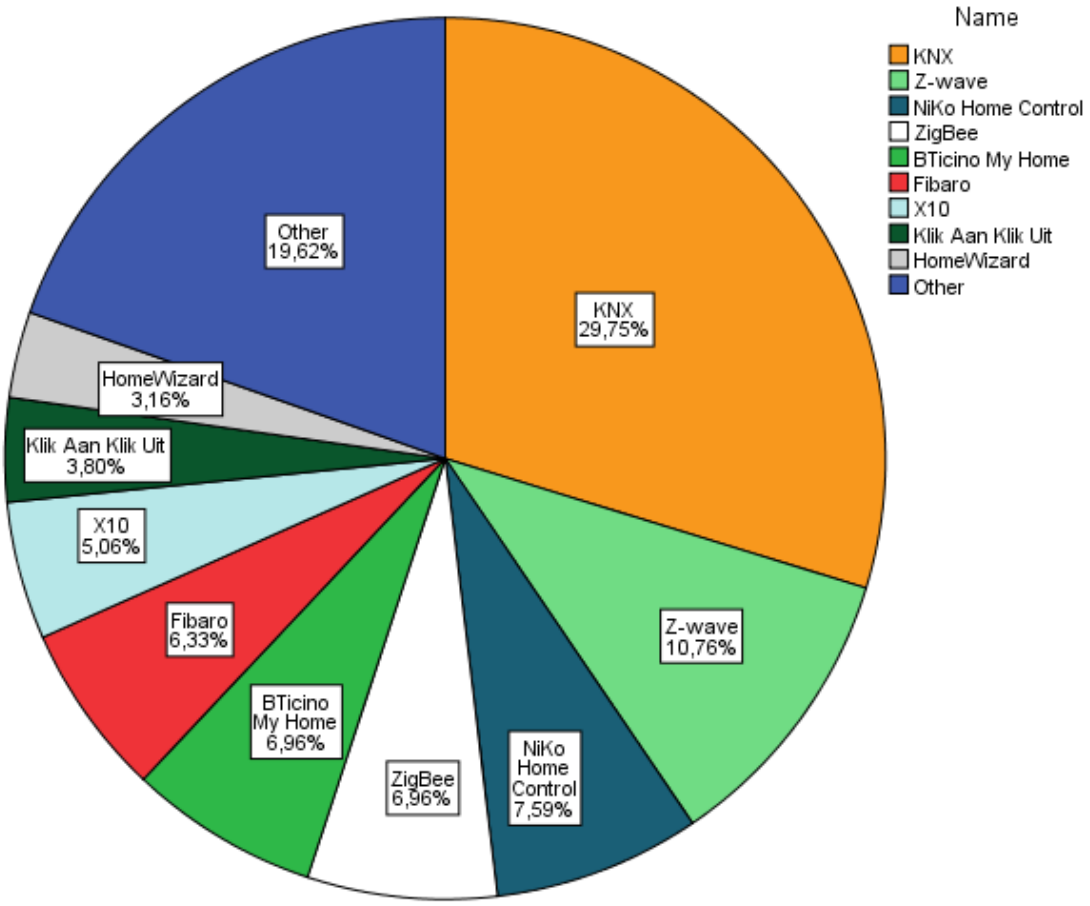

Figure 11: Distribution of building automation systems (n=104). Adapted from Domoticavergelijken.info (2014). Systems with less than 3% share are grouped under 'other'.

Two important factors should be considered when interpreting the data presented here.

Firstly, not all building automation systems are represented, as the primary data source (domoticavergelijken.info) focusses specifically on home automation, not building automation. More industrial-focussed standards (such as Veldbus) are thus not represented in the data.

Secondly, the companies that self-enrolled on this website may not properly represent the total population of building automation-related organisations, creating a different distribution of market shares. A factor that might strongly influence this is that larger organisations may be more interested in marketing than smaller organisations, creating a self-selection of the population represented here. This will skew shown market shares towards the systems mostly used by larger organisations. Because Moekotte is likely only interested in the systems used by larger competitors, this is not considered a problem by the researcher.

Comparison of building automation standard

The choice for a building automation standard to adopt as core technology depends on more than just market share. Other critical factors (according to Moekotte engineers) are;

- Technical capabilities and the extent to which the system is developed
- Availability; is soft- and hardware for the system well available and for reasonable prices?
- 'Openness' of the standard; is its main developer an independent party? This reduces commercial interests of potential suppliers for Moekotte. An open standard is also more likely to be compatible with multiple hardware brands, which likely results in lower prices for hardware. This factor can be spilt up in the extent to which the standard is dependent on one single supplier and the licence costs.

It is not possible to compare all available systems of the market. Therefore, a pre-selection was made by discussing the topic with some Moekotte engineers who already have some experience with the systems. The systems 'EnOcean, KNX, NiKo Home Control and Z-wave were chosen for inclusion in the comparison. Interviews and product information websites were subsequently used to compare the systems.

Table 29: Overview of the most relevant building automation systems. Source; interviews with Moekotte engineers and product information websites.

		weight/score		weight/score			weight/score		weight/score		max score =
Name	**Protocol / brand**	**Wireless**	**1**	**Availability hardware in NL**	**3**	**Brand dependence**	**3**	**Licence costs**	**1**	**Score 1-40**	Score 1-10
EnOcean	Protocol	wireless	1	Medium	5	dependant on multiple suppliers	3	Small costs	5	30	3,75
KNX	Protocol	Non-wireless	10	High	10	independent	10	High costs	1	71	8,875
NiKo Home Control	Protocol and Brand	Non-wireless	10	High	10	dependant on 1 supplier	1	Small costs	5	48	6
Z-wave	Protocol	Wireless	1	High	10	independent	10	Free	10	71	8,875
	Possible values / scores (1-10), higher is better	Non-wireless	10	High	10	independent	10	Free	10		
		Wireless	1	Medium	5	dependant on multiple suppliers	3	Small costs	5		
				Low	1	dependant on 1 supplier	1	High costs	1		

The highest ranking systems are KNX (score of 8,9 out of 10), Z-wave (score of 8,9 out of 10) and NiKo (score of 6 out of 10). Moekotte is thus advised to adopt KNX as core technology within the *building automation* business opportunity.

6.2. Gate: product service

Two criteria are evaluated in the product or service gate that is part of the model used for the analysis; overall quality and performance of the product or service has to be experienced as high and the new product or service has to have an already demonstrated market need.

Quality and performance differs per system, but while interviewing Moekotte engineers, they all agreed in interviews that all three potential industrial standards (KNX, Z-wave and NiKo) have sufficient quality for use as a core technology.

Market need is also already demonstrated in all three systems, as they are already widely in use. All three considered systems already have a reasonable amount of market share (KNX: 29,75%, Z-wave: 10,76% and NiKo: 7,59%), making them all three well-suited for adoption as core technology. Furthermore, the business concept of developing and installing building automation systems is already exploited by large competitors, further increasing the extent to which market need is already proven.

7. Market analysis

This phase of the evaluation analyses participants within the defined market. The goal of the phase is to develop a general idea of which customers can be targeted, competitors that may be encountered and which suppliers are available within the defined market.

7.1. Customers

Market(s) and major customers with specific opportunities are first identified. Abell (1980) provides a model for defining customers alongside three dimensions; customers, customer desires and products or services.

The next table shows some examples of some potential customer groups. This list is by no means complete.

Table 30: Potential customers in the building automation industry

Potential customer group	Interesting / uninteresting	(un-) interesting because
Owners of (semi-) public buildings such as schools, etc.	Interesting	
Industrial IT organisations that are currently customers of Moekotte	Interesting, provided they have offices in need of automating.	Existing customer relations
Utility building (non-consumer) organisations	Interesting	These organisations have B2B customers and build large projects, providing enough scale for Moekotte.
Governmental organisations	Interesting	
Consumers that buy houses from utility builders	Uninteresting	Consumer market (Business-to-business market is a hard demand for Moekotte)
Owners of houses in the luxury segments	Uninteresting	Not enough scale for Moekotte; too small projects will likely result from this market.
Consumers in general	Uninteresting	Same as previous.
Certification organisations	Uninteresting (may be interesting on long term)	Only interesting on long-term as lots of experience is needed to certify installations.

Potential customer desires of these customers in the building automation industry are; room automation, automatic lighting, security, comfortable climate conditions within buildings, obtaining a green image and providing a healthy environment for employees through the use of heating, ventilation and air-conditioning. These all are interesting for Moekotte.

Potential products or services that may be offered in the building automation industry are: ,design of hard- and software of building automation systems, hardware or software installation, programming software of building automation systems, implementing changes to building automation systems, certification or advice of building automation systems and after-sales technical support such as maintenance. All of these products and services are interesting for Moekotte.

Figure 12: Business domain of Abell filled out for the building automation market

7.2. Competitors

Competitors are to be expected in the building automation market, some of which are already present in markets currently exploited by Moekotte. The following table shows many already existing competitors, although it is likely to be incomplete.

Table 31: Largest suppliers and competitors in the building automation market.

	Competition (within the building automation market)		
	Installation	**System integrator**	**Technical advice or consultancy**
Air-Traxx		x	
Beveco	x	x	
Celsius Benelux		x	
Coneco Building Automation		x	
Covely-gdfsuez		x	
Croon Elektrotechniek	x	x	
Deerns			x
Emenem Building Automation		x	
HBK2000 Besturingstechniek		x	
HC Groep		x	
Imtech Building Services	x		
Kremer	x	x	
Kropman Installatietechniek	x	x	
Priva		x	
Regel Partners		x	
Rensen Regeltechniek		x	
Royal Haskoning			x
Siemens	x	x	
Simac QuadCore		x	
TA Control Systems		x	
Unica Regeltechniek	x	x	
Van Dam groep	x	x	
Webeasy		x	
Wolter en Dros Groep	x		

Adapted from Nederlandse brancheorganisatie voor gebouwautomatisering (2014).

According to Moekotte's sales personnel, the largest competitors Moekotte (that currently also faces in already existing markets) within the geographical areas in which Moekotte operates are Imtech, Cofely and Croon. These companies publish financial year reports, which is the only public data available that might indicate their relative strength compared to Moekotte. In appendix, 13.2 a detailed calculations of their relative strength is presented, the results of which are summarised in the following table;

Table 32: Financial strength of main competitors

Competitor	Relative strength of competitor (1-10. higher is stronger)
Imtech	8,7
Cofely	8,0
Croon	7,2
Moekotte	**5,3**

These numbers were based on purely financial data that describes the entire company (not specific to the building automation subsidiary of the competitor). Although using only financial data is not ideal for this type of analysis, it may offer insight in how much 'firepower' a competitor has available for investing in new markets.

As for the strength of competitors in the building automation industry, it is not possible to gain exact data on the subsidiaries. However, scanning competitors' websites and product offering descriptions, all three major competitors appear to be within the start-up phase of the market (probably less than 5 years active within the market). All three of the main competitors offer general concepts and have small lists of previous projects.

7.3. Detailed analysis of main competitors

It may be useful to take a more detailed look at any changes in strategy of the three main competitors in the market. Apart from using financial year reports for this part of the analysis, some financial data for Imtech was obtained using the Reach database (Bureau van Dijk, 2014), which access data of the Dutch Chamber of Commerce. The goal of this paragraph is to see if there are any changes in strategy that might influence strength of the competitors in the building automation industry.

Croon

Croon's financial year report over 2012 states that there are no major changes in the company results, although tables show it decreased with 8%. The orders they received dropped 13% as opposed to 2011. Although these numbers seem somewhat troublesome for Croon, their profits increased by 18% over 2012. The financial year report explains this is due to a 'higher productivity', which could be interpreted as positive (higher effectiveness) or negative (higher exploitation of employees capacities).

Over the fiscal year of 2012, Croon's acquired their competitor 'HVL'. The integration of this company within Croon started in 2013, therefore no results of this are known in the 2012 financial report yet. The main interests of Croon for this takeover are lower overhead costs and a higher turnover.
Should company result and the number of orders continue to drop, Croon will have to keep increasing its efficiency. This could potentially be troublesome for them, as doing so over multiple years is difficult for any company. However, their merger with HVL could assist them in doing so on the short term. Because the year report states that there are no major changes in the strategy of Croon, no major changes are expected in the company's involvement in the building automation.

Covely

Covely's turnover over 2012 remained at the same level as 2011. The company results and profits both dropped over 50% (profits dropped 7 million). Their order intake was about the same level as 2011. The company explains its decrease in profits through a single payoff that had to be made (it is not specified what this single payoff was). Upon further inspection, the decrease in profits seems not significant, as it was caused by a 9 million decrease in profits (which is less than 1% of total turnover) and a 3 million increase in costs (also less than 1% of total turnover). Because the company has turnovers of well over 1 billion, a decrease of 7 million in profits is probably not worrisome for the company. It could easily be explained due to normal fluctuation of costs and profits.

Two-thirds of Covely's turnover was realised in the south of the Netherlands. The rest mainly originated from the south and north of the Netherlands. This indicates the strong presence of the company in these regions of the country.

One of the strategy changes that the company indicates in their financial year report is that their southwest and south branches are being merged together. They hope this will lead to improvement in business development, innovation, automation and process optimisation. Furthermore, their financial year report puts a lot of focus on their recent ERP system integration. They further state that their focus points for the next financial year will be in improving internal processes, further use of their ERP system and optimisation of their reporting and cost tools. They expect no large reorganisations (and thus no major changes in strategy).

A central part of their strategy is customer intimacy, which according to them focusses on products that are very closely related to customer wishes and taking care of the entire process from engineering to maintenance. Long term relationships are also one of their focus points. This is in accordance with Moekotte's strategy. This could result the two companies using a similar strategy within the building automation industry.

Imtech

This company is one of the largest (if not the largest) players in the electrical engineering industry in the Netherlands. Within the year report of 2013, Imtech shows to have a negative income of €696 million, following a negative income of €198 million over 2012. The year report states that the company is in the middle of a reorganisation, explaining the major losses of these years. Investors are stated to be fully backing Imtech. The negative results could well result in a different strategy (such as a turnaround strategy), meaning it is possible the company will look for new markets to expand (possibly the building automation market). Alternatively, the company might want to 'play safe' and make the existing business profitable again. As details of such a strategy are not made public in the year report, this is purely speculation.

Concluding, all three companies that provide public information appear to perform medium to poor, relative to their 'normal' profits over previous years (before the economic crisis started). Moekotte

can expect stronger competition of these companies within the coming years if these companies follow strategies that force them to enter new markets (such as the building automation industry).

A small note regarding competitors in the building automation branche; many of them are part of the branche organisation *Nederlandse Brancheorganisatie voor Gebouw Automatisering* (http://gebouwautomatisering.fhi.nl/). Some interesting services this this organisation offers are information and advice specific to the branche (albeit possibly biased), collective marketing and periodic marketing research. The yearly contribution for companies larger than 25 employees is 1750 euro. Although not necessary, it is something Moekotte can consider, especially since many future competitors are already present in this group. This includes the larger three competitors (except Imtech).

7.4. Suppliers

Some limited data on suppliers was obtained using data from Nederlandse brancheorganisatie voor gebouwautomatisering (2014). This list is by no means comprehensive.

Table 33: Potential suppliers in the building automation market

	Developer automated system	**hardware supplier**	**hardware supplier system (representative of 1 brand)**
DORMA Nederland		x	
Echelon	x		
Hager		x	x
Honeywell Building Solutions		x	x
Johnson Controls Building Efficiency		x	x
Kieback & Peter		x	x
Priva		x	x
Saia-Burgess Benelux		x	x
Sauter Building Control Nederland		x	x
Schneider Electric		x	x
Siemens Nederland		x	x
Technische Unie		x	
Vedotec		x	x

Apart from these suppliers, Moekotte may use their already existing hardware suppliers such as Technische Unie. This option has the advantage of already existing relations with suppliers, bringing economic advantages through economies of scale. According to engineering colleagues, most of the required hard and software can be obtained through current suppliers of Moekotte.

7.5. Gate: Market

This gate in the B*usiness Opportunity Evaluation Model* evaluates; market growth, market familiarity, market intensity and the extent to which low-cost strategists are already present in the market.

Market growth in this market is difficult to measure, due to the fact that the market is relatively new. Some conclusions may be drawn on the fact that the industry recently (2011) gained its own branche organisation, hinting towards a growing industry. It is also safe to assume that demand within this branche will increase due to a growing desire of end-users for more technologically advanced buildings. The building automation market is part of the electrical engineering market, which is growing as a whole (Centraal Bureau voor de Statistiek, 2014; Rabobank, 2013a). Major competitors of Moekotte appear to have already entered the market, resulting in more growth. For all these reasons it is therefore assumed that the building automation industry is growing.

Overall market familiarity can be considered at a reasonably high level as Moekotte already sometimes takes on some small parts of projects within the market, such as placing hardware. The fact that much information on this subject was based on interviews with Moekotte engineers also shows that there is some familiarity with the industry. One major element of the business opportunity in which no experience is yet available within Moekotte is the software development process. A possible way to improve on market familiarity is starting by taking on small projects. Moekotte can then take on projects of continuously increasing size, building up to a more definitive entry of the market and a stronger allocation of resources for exploiting the market.

Market intensity of the business opportunity is decided by the type of industry the market is currently in; either Mark I or II industries. The main difference between these is that mark I industries are less 'developed'; they are easier to enter, there are lots of opportunities to innovate, there are not many entrance barriers and no heavy R&D costs are necessary. Mark II industries are more developed; companies that have large proportions of the market created entrance barriers to keep new competitors out. The building automation market is mostly a mark I industry. The industry can be entered relatively easy due to the lack of any entrance barriers, low R&D costs required and there is a small number of competitors that are not yet strongly developed in the industry.

The extent to which-low-cost strategists are present in the market is heavily influenced by one-man businesses. However, Moekotte would likely aim for larger projects that are out of reach to these organisations, lowering the amount of low-cost strategists in the target market. Large organisations that have a low-cost strategy were not found in the analysis. Therefore, the amount of large low-cost strategists is low within the building automation industry.

Concluding this phase of the analysis, the market is reasonably attractive in terms of customers, competitors and suppliers. Market growth is likely present, there is already some familiarity with the market, market intensity is low and Moekotte already has some current customers that may be susceptible for becoming customers in the building automation market. Low-cost strategists are

mostly present in a different segment of the market (often luxury consumer housing) and major competitors are already familiar as they are already encountered in other markets.

8. Market demand forecasting

This stage of the analysis analyses forecasts of the market. The stage's main purpose is to further increase knowledge of the market opportunity and find trends in the market.

8.1. Forecasts

Woodruff and Gardial (1996, p. 34) provide a list of criteria that may be used to analyse new markets and the way in which they influence the rest of the company. These are discussed and forecasted in the following table.

Table 34: Factors in market demand forecasting and opportunity evaluation.

Group	Criteria	Forecast	Justification for forecast
Financial criteria	Sales growth	Positive	The building automation market is likely growing (Gebouwautomatisering.fhi.nl, 2012).
	Market share growth	Medium	The market does not appear saturated, but all large competitors are already active in the building industry market (based on information on their websites).
	Profit potential	Medium	The above factors lead to a potential positive profit, but only after investments in the market, decreasing investment return time.
	Return on investment / cash flow	Medium	Same as previous cell.
Sustained advantage criteria	Industry entry barriers keep out competition	High for small competitors, Low for large competitors	One entrance barrier is present; relatively steep necessary investments for the market. Smaller parties will not be able to target the same customers as Moekotte is planning and will likely focus more on utility (house) building or niche sub-markets such as luxury housing. Larger companies do not suffer this barrier.
	Untapped segments available	Medium	The building industry is already being exploited by some competitors, although enough 'room' seems to be available for new competitors, based on the already present competitors' websites.
	Evidence of relative strengths	Low	Moekotte already has strengths with electrical engineering in general. However, some of these do not apply (fully) to the building automation market, such as knowledge of available industrial standards, customer knowledge and image within the industry.

Adapted from Woodruff and Gardial (1996)

Table 35: Factors in market demand forecasting and opportunity evaluation (continued).

Group	Criteria	Forecast	Justification for forecast
Synergistic criteria	Enhance opportunities for complementary products	High	Many other subsidiaries of Moekotte could profit from a building automation department due to synergy in projects, customers and technology.
	Keep customers with shifting preferences in the firm's sales	Medium	Moekotte's most important customers are customers who have industrial production. Building automation may not be of interest to customers.
	Fill niches to discourage competitors	Low	Moekotte's largest competitors have already filled the building automation market. Possible niches include advice (consultancy), certification, etc, but these require practical experience usually gained form the main market.
Company and brand image criteria	Consistent with corporate image	High	Other departments and their image would fit very well with the a department that concerns itself with the building automation market.
	Enhance corporate image	High	Apart from consistency, the building automation market would also increase Moekotte's image with regard to the services they offer.
	Enhance product line image	High	Same as previous.

Adapted from Woodruff and Gardial (1996)

Overall, most factors within the category have a positive forecast making the building automation market an industry that is interesting from a market demand perspective.

8.2. Gate: forecasts

Due to the unreliable nature of forecasting, minimum scores were not set in this gate of the *Business Opportunity Evaluation Method*. Rather, the purpose of this phase in the analysis is to inform decision makers of the business opportunity of some long-term aspects of the business opportunity.

The two criteria evaluated within this gate are market share of the new subsidiary and possible margin of the new product or service. Moekotte has a reasonably chance for obtaining a good level of market share, mostly because the major competitors are not yet developed in the building automation industry (as described previous stage; *market analysis*). Margin of the new product or service is expected to be positive, based on interviews with calculators within Moekotte.

9. Market opportunity evaluation

This stage analyses the opportunity in the areas of finance, resources and experience of managers.

9.1. Financial

The financial aspect of a new business opportunity cannot be analysed in detail until the opportunity is actually executed. However, some estimates will be made about necessary investments, probably break-even time, risk of the investment and possible exit routes.

In order to create an idea of the investment aspect during the first years of the operation, three scenarios describing three years of the business opportunity were made in which major costs were attempted to be mapped. Assumptions are based on conversations with colleagues, mostly calculators, who have experience in calculating costs, margins and profits of projects in the electrical engineering. The purpose of the model is not to get a detailed financial picture, but rather to find out what major costs and investment might arise if the opportunity is executed.

Table 36: Financial estimations of first three years

All amounts are in euro's, unless otherwise stated

Assumptions	
Education budget (first year only)	€ 10.000
Interest	0,04
License costs per year	€ 1.000

Scenarios:			
	Negative	Neutral	Positive
Marketing costs to obtain first project	€ 10.000	€ 5.000	€ 2.000
Year 1 : 1 project			
fist project		€ 0	€ 20.000
Year 2: 2 projects			
First project	€ 0	€ 0	€ 20.000
Second project	€ 0	€ 20.000	€ 20.000
Year 3: 3 projects			
first project	€ 0	€ 0	€ 20.000
second project	€ 0	€ 20.000	€ 40.000
third project	€ 20.000	€ 20.000	€ 40.000

Year 1

Negative	
Marketing costs to obtain first project	-€ 10.000
Personnel	
Education	-€ 10.000
Development	
License costs	-€ 1.000
Software development IDE	-€ 1.000
possible certification	-€ 1.000
Other	
branche organisation (optional)	-€ 1.750
Marketing costs	-€ 5.000
Projects	
First project (loss due to learning curve)	€ 0
Loss / profit year 1	-€ 29.750

Neutral	
Marketing costs to obtain first project	-€ 5.000
Personnel	
Education	-€ 10.000
Development	
License costs	-€ 1.000
Software development IDE	-€ 1.000
possible certification	-€ 1.000
Other	
branche organisation (optional)	-€ 1.750
Marketing costs	-€ 5.000
Projects	
First project (break-even)	€ 0
Loss / profit year 1	-€ 24.750

Positive	
Marketing costs to obtain first pro	-€ 2.000
Personnel	
Education	-€ 10.000
Development	
License costs	-€ 1.000
Software development IDE	-€ 1.000
possible certification	-€ 1.000
Other	
branche organisation (optional)	-€ 1.750
Marketing costs	-€ 5.000
Projects	
First project (positive)	€ 20.000
Loss / profit year 1	-€ 1.750

Year 2

Negative	
Development	
License costs	-€ 1.000
Other	
branche organisation (optional)	-€ 1.750
Marketing costs	-€ 5.000
Projects	
First project (Neutral)	€ 0
Second project (neutral)	€ 0
Loss / profit year 2	-€ 7.750
Cumulative	-€ 37.500

Neutral	
Development	
License costs	-€ 1.000
Other	
branche organisation (optional)	-€ 1.750
Marketing costs	-€ 5.000
Projects	
First project (break-even)	€ 0
Second project (positive)	€ 20.000
Loss / profit year 2	€ 12.250
Cumulative	-€ 12.500

Positive	
Development	
License costs	-€ 1.000
Other	
branche organisation (optional)	-€ 1.750
Marketing costs	-€ 5.000
Projects	
First project (positive)	€ 20.000
Second project (positive)	€ 20.000
Loss / profit year 2	€ 32.250
Cumulative	€ 30.500

Table 37: Financial estimations of first three years (continued)

Year 3					
Negative		Neutral		Positive	
Development		**Development**		**Development**	
License costs	-€ 1.000	License costs	-€ 1.000	License costs	-€ 1.000
Other		**Other**		**Other**	
branche organisation (optional)	-€ 1.750	branche organisation (optional)	-€ 1.750	branche organisation (optional)	-€ 1.750
Marketing costs	-€ 5.000	Marketing costs	-€ 5.000	Marketing costs	-€ 5.000
Projects		**Projects**		**Projects**	
First project (Neutral)	€ 0	First project (break-even)	€ 0	First project (positive)	€ 20.000
Second project (neutral)	€ 0	Second project (positive)	€ 20.000	Second project (positive)	€ 40.000
Third project	€ 20.000	Third project	€ 20.000	Third project	€ 40.000
Loss / profit year 3	€ 12.250	Loss / profit year 3	€ 32.250	Loss / profit year 3	€ 92.250
Cumulative	-€ 25.250	Cumulative	€ 19.750	Cumulative	€ 122.750

	Totals after 3 years	Net present value	Return time (assuming linear returns)
Negative scenario	-€ 25.250	-€ 22.447	> 3 years
Neutral scenario	€ 19.750	€ 17.558	2 years, 5 months
Positive scenario	€ 122.750	€ 109.124	1 year, 1 month

Although these numbers are largely educated guesses based on interviews with colleagues of the calculation department of Moekotte, some useful statements can be deducted about the first three years of the project.

The major costs of the first year will resolve around marketing of the new subsidiary. Once a first project actually is found, there is no reason for the project to have negative returns. This is due to the nature of projects within the electrical engineering industry (of which the building automation industry is a part). Projects can be divided into two major costs; material (often hardware) and personnel costs. These can both be sold with a minor margin, resulting in a relatively high safety of projects. The only probable way in which projects can become unprofitable is through the miscalculation of required hours for development (personnel costs).

Initial return rates will very strongly depend on the time it will take to find an initial project. This is because as discussed in the previous point, major costs of the initial phase of the business opportunity will resolve around marketing costs. Once a first project is found, return rates will probably start becoming more positive.

The first year will very likely not be profitable. Return time is probably at least longer than one year, but more likely closer to more than two years (assuming linear income throughout the second year). This is based on the assumption that in the first year, some major costs have to be made which include marketing and image building, education of personnel, obtaining software development licences and possible certification.

A major direct investment is not necessary, as most costs of the first years will come from personnel expenses. As soon as a first project is encountered however, some licence costs or software development costs might have to be made.

After a couple of years, the subsidiary is likely to be profitable, provided that enough projects can be found. This is because according to colleagues (calculators) at Moekotte, it is a reasonable assumption that projects are profitable.

Next to the financial costs, there are also some risks associated with the business opportunity. The most noticeable of these risks are;
Competitors may saturate the market more strongly than their present levels, leading to a low amount of projects for Moekotte.

Hiring and layoff costs of new personnel in the event of an exit of the market. These costs may be minimized by placing the new personnel in other parts of the company, something which is a viable option because software engineers often are able to switch between software development tasks.

Although there are some investments associated with entering the market, possible risks and exit routes of the business opportunity appear favourable.

9.2. Resources

There are a number of resources that companies will need when entering the building automation market. Some are already obtained, others will still have to be acquired.

Knowledge about norms and values in the market is one of the major requirements. Knowledge of norms and values can include information such as the amount of after-sales service which is normal in the market. Another example is the average cost of installing a building automation system.

Another required resource is personnel. To successfully execute a business opportunity, a commercial person who obtains new projects is required. At least one software engineer will also be needed to develop building automation systems is also required. Of these, the most problematic element is likely that of personnel. A trend specific to the electrical engineering and IT branches, is that of a shortage of technically educated personnel. Until 2016, the Dutch economy will have a shortage of 155.400 technically educated people (61.000 lower educated, 58.000 middle educated and 35.500 highly educated people) (Researchcentrum voor Onderwijs en Arbeidsmarkt, 2011).

A network is also required for successfully executing the building automation business opportunity. Customers and suppliers are a major aspect of this category. Customers and suppliers were already discussed more detailed in the earlier *market analysis* stage. Moekotte already has potential customers for the building automation industry within the customer base it is currently already supplying. Suppliers are also already present; current suppliers are well able to supply Moekotte with the hardware they might need in the building automation industry.

Another possible aspect of resources are competitors with which to work together on larger projects may also be necessary. Moekotte has successfully done this in the past to spread their risks more evenly. Although initially not required, if the company has the ambition to take on larger projects, it may be necessary.

Finally, a positive image of the company or ‘goodwill’ is also required. This can only be obtained through either building the image of Moekotte by executing projects in the industry successfully or

by taking over an already existing organisation within the industry, something Moekotte does not consider.

9.3. Manager or entrepreneur

The manager or entrepreneur leading the new subsidiary into the business opportunity cannot be reviewed by the analyst because at the time of writing, there is no candidate for a management position in building automation subsidiary available yet.

9.4. Gate: Finance

The financial gate in the business evaluation model evaluates financial return rate after 5 years. By making a simple prediction model as described within this chapter, it is reasonable to assume that the operation will be profitable well before five years have passed.

9.5. Gate: resources

The two evaluated criteria in the resources category are; R&D alliances in the form of supplier relationships (must be already formed) and technical capabilities (familiarity with similar technologies must already exist). These two conditions are fulfilled; Moekotte already has potential customers in the present customer base and current suppliers can be used for hardware requirements. Furthermore, the company is reasonably familiar with similar technologies as those used in the building automation industry.

9.6. Gate: Manager or entrepreneur

This factor will not be reviewed by the analyst, because at the time of writing, there is no candidate for this position available yet.

10. Overview

This chapter gives an overview of the results of the *Business Opportunity Evaluation Method* and the major pros and cons of entering the building automation industry by Moekotte.

The following table shows the gates of the Business Opportunity Evaluation Method and minimum required scores of every criterion within these gates.

Table 38: Evaluation criteria, their minimum scores and resulting scores

Gate	Criterion	Minimum score required for passing gate	Score	Acceptable
2: Product or service	Quality and performance	High	High	Yes
	Demonstrated market need	High	High	Yes
3: Market	Market growth	Positive	Positive	Yes
	Market familiarity	High	High	Yes
	Market intensity (lower is better)	Low (maximum score)	Low	Yes
	Extent to which low-cost strategists are in the market (lower is better)	Medium (maximum score)	Low	Yes
4: Forecasts	Market share of new subsidiary	n.a.	Medium	Yes
	Margin of new product or service	n.a.	High	Yes
5.1: Financial factors	Return rate after 5 years	Neutral	positive	Yes
5.2: Resources	R&D Alliances	High	High	Yes
	Technical capabilities	Medium	Medium	Yes
5.3: Experience of managers or entrepreneurs	Background, experience and track-record of manager	High	n.a.	n.a.

Another useful input for management in deciding whether or not to enter the building automation industry, is a summary of the most influential factors in this analysis. The following table shows which factors the researcher deems most important in the *building automation* building opportunity;

Table 39: Overview of the most important pros and cons of entering the building automation industry

	Category	Positive	Negative
Macro	Environmental	Stronger demand for building automation and greener technologies.	Economy slowly recovering from crisis.
	Product or service	Well-developed industrial standard with proved market need	Industrial standard's market share are somewhat divided.
Meso	Customers	Potential customers for building automation systems are available in Moekotte's current portfolio.	
	Competitors		Major competitors are already present in the market and have a head-start. These companies have access to more financial resources than Moekotte.
	Market demand forecasting	Likely growing market Reasonable market familiarity Low market intensity	
Micro	Market opportunity evaluation	Reasonably safe to assume return rates are positive after 5 years.	First year very likely leading to financial losses.
		No direct investments necessary.	Shortage of technical personnel.
		Much technical knowledge present within Moekotte.	
	Total	**8**	**5**

11. Conclusions

In this analysis, the *Business Opportunity Evaluation Method* was used to analyse the building automation for Moekotte. The opportunity in itself seems interesting enough, mostly due to synergetic elements and future potential of the market. The gates within the Business Opportunity Evaluation Method all were passed, which results in a confirmation of the hypothesis; *the building automation industry is attractive enough to execute it.*

An important fact when interpreting this analysis is that both companies and entrepreneurs (and probably students) are often too optimistic about their survival chances in new markets. They overstate advantages and look less to negative aspects (De Meza & Southey, 1996). Furthermore, academic literature shows that only 44% of new companies in the Netherlands for more than ten years (Audretsch, Houweling, & Thurik, 2000, p. 9). These numbers mean that the odds are not in favour of new starting companies or new subsidiaries of companies, something Moekotte should consider in their decision on the business opportunity.

Nonetheless, the building automation market is most definitely the most attractive option for Moekotte when considering all potential new markets. Whether the company should actually start entering the market will depend on the risk the company is willing to take. The advice of the researcher is execute the business opportunity. The most important reasons for this advice is that positive conditions outweigh negative conditions, risks are relatively low, necessary investments are not steep and possible exit routs are favourable.

For future business opportunities, Moekotte's management may use the *Business Opportunity Evaluation Method* as described in this document. The model is made specific for Moekotte's purposes; it analyses business opportunities without requiring large amounts of time or knowledge and evaluates criteria that Moekotte's management deems important.

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13. Appendices to practical example Business Opportunity Evaluation Method

13.1. Moekotte locations and their scopes

Note; the definition of these scopes are not 'hard'. The managing director stated that if the situation requires it, multiple subsidiaries are included in projects.

Table 40: Moekotte locations and their market scopes

	Electrical engineering	Industrial IT	Panel and module construction	Mechanical systems	Data networks	Fire and theft security systems
Moekotte group	x	x	x	x	x	x
Moekotte Enschede	x	x	x		x	x
Moekotte Veendam	x	x	x		x	x
Moekotte Eerbeek	x	x			x	
Moekotte& Assink Installatietechniek				x	x	x
Meetris GmbH	x				x	

13.2.Relative strength of main competitors

Table 41: Financial strength of main competitors. Based on financial year reports of 2012. All amounts in Euros

	turnover	Score	EBITDA	Score	EBIT	Score	Income after taxes	Score	Total assets	Score	Number of employees	Score	Strong presence in northeast NL	score	∑ score 0-75	Score 1-10
Croon (group)	€ 217.584.000	2	€ 13.880.000	3	€ 8.491.000	2	€ 6.300.000	3	€ 120.449.000	3	1986	2	low	1	54	7,2
Cofely (group)	€ 1.100.000.000	3	€ 24.287.000	3	€ 10.940.000	3	€ 6.926.000	3	€ 380.495.000	3	6137	2	low	1	60	8,0
Van Lente	€ 8.755.516	1	€ 245.343	2	€ 123.481	2	€ 103.600	1	€ 3.813.051	1	111	1	high	3	37	4,9
Beenen	€ 15.300.000	1	€ 1.538.000	2	€ 1.304.000	2	€ 1.307.000	1	€ 7.943.000	1	188	1	high	3	37	4,9
imtech (group) (2011)	€ 5.113.800.000	3	€ 288.400.000	3	€ 259.400.000	3	€ 150.400.000	3	€ 3.938.400.000	3	29.473	3	low	1	65	8,7
															0	0,0
Moekotte	€ 7.289.270	1	€ 1.572.047	2	€ 1.229.817	2	€ 872.899	2	€ 11.281.528	1	250	1	high	3	40	5,3
Max	€ 5.113.800.000		€ 288.400.000		€ 259.400.000		€ 150.400.000		€ 3.938.400.000		29473					
Min	€ 8.755.516		€ 245.343		€ 123.481		€ 103.600		€ 3.813.051		111					

Factor	Weigt 1-5. 5 > 1	Justification
Turnover	5	Turnover exists of projects * size, possible good indicator of market share
EBITDA	1	Less informing than income after taxes
EBIT	1	Less informing than income after taxes
Income after taxes	3	Shows present financial position and trend of strength
Total assets	5	Indicator of how much long and short term resources company has.
Number of employee	5	Number of employees is indicator of company size.
Presence in NE NL.	5	Presence in northeast of NL decides relevancy for Moekotte.
Total availible weight	25	

Scores. 3 > 1			
	1	2	3
	0-20m	20-1b	> 1 b
	<0	0-10m	> 10m
	<0	0-10m	> 10m
	<0	0-3m	> 3m
	0-20m	20-100m	> 100m
	0-1k	1-10k	> 10k

Calculation of score;	∑(score * weight)

13.3.Competitors found on Domoticavergelijken.info (2014)

The website domoticavergelijken.info provides a limited overview of some potential competitors and suppliers throughout the Netherlands:

Name	Location(s)	Areas of expertise
@Home Automation & Decoration	Mierlo, dedemsvaart	Installateur,Leverancier,Adviseur,Programmeur,Accession Techniek ,Systeemintegrator,Programmeu
2nexus	ouddorp	Installateur,Leverancier,Adviseur,Systeemintegrator,Programmeur
Accession Techniek	Dedemsvaart	Adviseur
AllSmart		Webshop
Alpha-X domotica	Tilburg	Leverancier,Adviseur,Systeemintegrator
Ambiance Zonwering Haarlem	Lorentzplein 1a, 2012 HG Haarlem	Installateur,Leverancier,Adviseur
Ambiance Zonwering Harderwijk-Ermelo	Harderwijk	Leverancier,Adviseur,Webshop,Informatieve website
AVCI (Audio Video Custom Install)	Tappersweg 14-17 Haarlem	Leverancier
AV-Solutio	Keerbergen	Installateur,Leverancier,Adviseur,Systeemintegrator,Programmeur
BANG & OLUFSEN Veldhuizen	Harmelen	Leverancier,Adviseur,Programmeur
Banosol	Heerhugowaard	Installateur,Leverancier,Adviseur
Bart Schellens Alg. Elek. Werken	Leuven	Installateur
BÉCÉWÉ-NOVA	Amsterdam	Installateur,Leverancier,Adviseur,Informatieve website
Beheco	Assen	Installateur,Leverancier,Adviseur
BeNext-iHome	Amsterdam, Shanghai	Webshop,Informatieve website,Leverancier
Besturingen.com reparatie besturingstechniek		Leverancier,Webshop
Bitpower	Ertvelde, Evergem	Installateur,Leverancier,Adviseur
bolkdomotica	bolkdomotica, St. Canisiussingel 19h 6521 AR Nijmegen.	Installateur,Adviseur,Informatieve website,Systeemintegrator
Bonlite Zonweringen	Kennemerlaan 39 Ijmuiden	Installateur,Leverancier,Adviseur
BVBA K-si Automation	Maaseik (BE)	Installateur,Leverancier,Adviseur

CasaMeva	Barendrecht	Installateur,Leverancier,Systeemintegrator
De Opera Domotica	Oisterwijk	Installateur
De Zonweringzaak	Haarlem	Installateur,Leverancier,Adviseur
DM Domotics	Gierle	Installateur,Leverancier,Adviseur,Informatieve website,Overige
Domintell Nederland	De Limiet 19, Vianen	Leverancier
Domo Connect B.V.B.A.	Nijlen (België)	Leverancier,Adviseur,Webshop
Domotica discount		Installateur,Leverancier,Adviseur,Webshop
Domotica Passie	Zandvoort	Adviseur,Systeemintegrator,Programmeur
DomoticaVormgevers	Breda	Adviseur,Systeemintegrator,Programmeur
DomoticaXL		Installateur,Adviseur
Domoticom	Oirsbeek	Leverancier,Adviseur,Systeemintegrator
Domutron	Barneveld	Systeemintegrator
Dotronix BVBA	Mol (België)	Installateur
DT-Elektrotechniek	Nijmegen	Installateur,Adviseur,Programmeur
D-Touch systeemintegratie BV	Boxtel Nederland	Leverancier,Adviseur,Systeemintegrator,Programmeur
Dx electro bvba	Achterstraat 15. 9800 astene	Installateur,Adviseur,Systeemintegrator,Programmeur
Dynamitec	Wondelgem (Gent)	Installateur,Leverancier,Adviseur,Systeemintegrator,Programmeur
EDB Custom Technics	Assendelft	Installateur,Leverancier,Adviseur
e-Domotica	Barneveld	Leverancier,Adviseur
EDUKKER	's-Gravenzande	Programmeur
Elektriciteit Vochten NV	Merksem, Antwerpen	Installateur,Systeemintegrator
Entron Slim Wonen en Werken	Dongen	Leverancier,Adviseur,Informatieve website
erpe zonwering	Sterrenbergweg 7 Soesterberg	Installateur,Leverancier,Adviseur
Frame Domotica BV	Heemstede	Installateur,Adviseur,Systeemintegrator,Programmeur
Helios Zonwering BV	Oud Bussummerweg 24, 1401 SR te Bussum	Installateur,Leverancier,Adviseur
HEW bvba	Vorselaar (BE)	Installateur,Leverancier,Webshop
Home Autotainment Benelux BV	Prinses Marijkestraat 11, Bergeijk (totale woonbeleving), Nieuwstraat	Installateur,Adviseur,Systeemintegrator

	12, Bergeijk (KNX/EIB), Elkensakker 2a, Bergeijk (MyHome, Bticino), Burgemeester van Houtlaan 4a, Helmond (zigbee, Lifestyle)	
HOME By Wansleeben	Frisaxstraat 12 Wolvega 8471 ZW	Leverancier,Adviseur
Home Motion House	HomeMotion House - Villa Arena, Amsterdam	Adviseur
Huiscontrole.nl		Leverancier,Adviseur,Webshop
Huitsing Domotica	Stad 16, 7895AA Roswinkel	Installateur,Leverancier,Adviseur,Systeemintegrator,Programmeur
ICIT BV	Franeker, Amsterdam, Nijmegen	Adviseur,Systeemintegrator,Programmeur
IDGS		Adviseur
IDsolutions	Oud-Heverlee (BE)	Leverancier,Adviseur,Webshop
Informatieve website		
Invence BV	Markelo, Hengelo (Ov.)	Adviseur,Systeemintegrator
IPBuilding	Lennik , Wetteren	Leverancier
iRidiumMobile.nl	Nederasselt	Leverancier,Informatieve website
Jacco van Haperen Elektro Service	Hulst	Installateur,Leverancier,Adviseur
Jatibee BV		Installateur,Leverancier,Adviseur,Webshop
JNV België	Grobbendonk	Installateur,Leverancier,Adviseur,Systeemintegrator,Programmeur
KNX1 - KNX servicegroothandel	Boxtel Nederland	Leverancier,Webshop
Leertouwer bv	Barneveld	Installateur,Leverancier,Adviseur,Informatieve website,Systeemintegrator
Lencom BVBA	Kinrooi	Installateur,Adviseur
loxoneshop.nl	Veghel	Webshop
Loxonestore.nl		Webshop
Meerdan b.v.	Amsterdam	Systeemintegrator
Michelbrink Elektro	Esbeek	Installateur,Leverancier,Systeemintegrator,Programmeur

Multi-sound	Dessel (BE)	Installateur
Nederend		Installateur,Leverancier,Adviseur
Negotica Development Projects	Groningen	Adviseur,Systeemintegrator,Programmeur
Pinora Advanced Media Systems	Blauwe Reiger 25, Hoogkarspel; breelaan 5a, Bergen (NH)	Installateur,Leverancier,Adviseur,Systeemintegrator,Programmeur
Prowork Home Systems	Mastbos 17a, 5531 MX Bladel	Installateur,Adviseur,Systeemintegrator,Programmeur
PureDomotica	Liempde	Leverancier
QuickSpot	Barendrecht	Installateur,Adviseur,Webshop
QuoVadis Nederland BV	Baarn	Leverancier,Adviseur,Systeemintegrator
ROBBshop.nl	Empel	Leverancier,Webshop,Informatieve website
rolluikstore		Webshop
sanelco		Leverancier,Adviseur,Programmeur
Schreuder-Ruitenbeek Installatiebeheer	Amersfoort	Installateur,Leverancier,Adviseur
Schumacher Elektrotechniek		Installateur,Adviseur,Systeemintegrator,Programmeur
Schumacher Elektrotechniek		Installateur,Leverancier,Adviseur,Systeemintegrator,Programmeur
Senft Zonwering	Nassaulaan 70-76 2011 PE Haarlem	Leverancier,Adviseur,Informatieve website
Smarter Homes	Aalsmeer	Installateur,Leverancier,Adviseur,Webshop,Informatieve website,Systeemintegrator,Programmeu
SmarThinX B.V.	IJsselstein	Leverancier
Smarthome Engineering	Loosbroek	Installateur,Adviseur,Systeemintegrator,Programmeur
Smartronix		Installateur,Adviseur,Webshop
Snellen elektrotechniek	Lunteren	Installateur,Adviseur
SOLIVI	Schriek Grootlo	Installateur,Leverancier,Adviseur,Webshop,Systeemintegrator
solud	leuven	Installateur,Leverancier
Van den HOOGEN engineering bv	Bunschoten - Spakenburg	Installateur,Adviseur
Van Havere nv	Kapellen - Antwerpen	Installateur,Adviseur,Webshop,Informatieve website,Systeemintegrator,Programmeur
Vecolux bvba		Leverancier,Velbus ,Leverancier
Velota zonwering & buitenleven	Hoofddorp	Installateur,Adviseur
View to Fit, CAD & Engineering, Home	Eindhoven	Installateur,Leverancier,Adviseur,Systeemintegrator,Programmeur

Automation		
Voltage Elektrotechniek	Zevenhuizen	Installateur,Leverancier,Adviseur,Systeemintegrator
W.M. Algemene Elektriciteitswerken		Installateur,Leverancier,Adviseur,Informatieve website,Programmeur
Whitebox Solutions		Adviseur
Wirelesswonen		Adviseur
Wolsink Elektrotechnische Groothandel	Enschede	Installateur,Adviseur,Webshop,Programmeur
Wonnink Zonwering B.V.	Siliciumweg 34, 3812 SX, Amersfoort	Installateur,Leverancier,Adviseur,Informatieve website
XAT Distribution	Harderwijk	Installateur,Leverancier,Adviseur,Webshop
Z-Wave Nederland B.V.	Weert	Overige