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1 Introduction

This section will introduce the reader to the background of business models and biotech industry.

Business models are used to illustrate the design and architecture of the value creation process of companies. One of the most important parts of a business model is how the company delivers value to its customers (Chesbrough, 2010). Chesbrough (2010) further argues that the business model of a company reflects the management's theory regarding what their customers want, what the management team consider the value of the product or service, and how the company can create an organization to best meet those values. It is therefore important that the company communicate the value creation activities, which tells how the enterprise will deliver value to its customers (Chesbrough, 2010).

A solid business model is essential when choosing a strategy to commercialize products and technologies (Sabatier, Mangematin and Rousselle, 2010). The design and choice of business models for biotech Small and Medium Enterprises, SMEs, are different from traditional enterprises, since SMEs in the biotech industry rarely have revenues from operating sales.

1.1 Background

According to Doganova and Eyquem-Renult (2009), the definition of business models can be traced back to the dotcom era that burst in the 2000s. Morris, Schindehutte and Allen (2005) state that the interest in business models is relatively new and since the 2000s it has influenced the economic world in an increasingly expansive manner.

Lambert and Davidsson (2012) conclude that 69 research papers published between 1996 and 2010 have the words "business model" in the title. 30 of these articles are focused on e-commerce[1] businesses and nine articles are focused on biotech, biomedical and/or biomedicine. The authors argue that existing research on business models have mainly been focused on e-commerce and that it exists further room for research in the biotech industry.

When an enterprise is established it will either explicitly or implicitly choose a particular business model to describe the value creation process of its business (Teece, 2010). Today, no definition has been generally accepted for the term "business model", but according to Morris, Schindehutte and Allen (2005), key words in the 30 most popular business models all include "economic, operational and strategic". Zott and Amit (2010) argue that business model design is a key activity and decision for today's enterprises. "The definition implies that the activities that a firm is engaging in are embedded in its business model." (Willemstein, van der Valk and Meeus, 2007, p. 221).

[1] E-commerce refers to business made over the Internet, via websites such as ebay.

Lately, the business models are also argued to have become even more important than technology or innovation of the product (Chesbrough, 2010).

It is argued that there is an absence of enough biotech enterprises focusing on finding treatments for common diseases (Resnik 2004). The research in biotech is proven to have direct impact on life science and health distribution, which has a direct positive impact on several measures of the health of populations (Resnik, 2004). Today's research of business models has mainly been focused on e-commerce (Morris et al. 2005). The authors therefore aim to contribute to the research of business models by extending the research to focus on SMEs in the biotech industry.

The most successful enterprises have typically generated revenues by implementing several different business models simultaneously to serve different types of audiences and customers in different kind of markets (Morris, Schindehutte and Allen, 2005). One major uncertainty for SMEs in the biotech industry is the duration between the initial investment and the release of the product or service that would generate operating revenues (Sabatier, Mangematin and Rousselle, 2010). Development of new communications, new technologies and establishment of open global trading regimes have in recent years caused change in the balance between demand and supply. This has led to the supply alternatives becoming more transparent and enabled more variegated customers (Teece, 2010). The fast changing business environment caused by fast development of technology and communications has created new business opportunities (Morris, Schindehutte and Allen, 2005).

According to Lambert and Davidsson (2012) the business model and its components[2] are important for ventures. By studying the business models of SMEs in the biotech industry, the authors will provide a solid foundation on business models and give suggestions to future research.

[2] A component in a business model is argued by IBM consulting service (2005) to be modular building block that defines the enterprise.

1.2 Problem statement

The business model is essential for an enterprise to illustrate how it delivers value to its customer. In order to increase the probability of long-term success, companies need to assess their strategic options through their business model (Shafer, Smith and Linder, 2005). By examining the effect of different components in business models the authors will create a better understanding of how SMEs in the biotech industry can assess the design of their current and future business model.

SMEs in the biotech industry operate on speculation of future returns and rarely have operating revenues from formation. This financial obstacle is proven to greatly impact the performance and results of their direct business activities. If the enterprise is unable to create a sustainable business and gain profits from their value proposition, the company will face financial difficulties that directly negatively impact the output (Morris, Schindehutte and Allen, 2005).

Even though ventures have a great presence of market opportunities, sufficient resources, and driven entrepreneurs, their products often still seem to fail. One problem that seems to cause failures is the underlying model driving the business. There is little research published addressing this question regarding business models (Morris, Schindehutte and Allen, 2005).

1.3 Purpose

The purpose of this thesis is to explore the design of business models for SMEs in the biotech industry.

1.4 Research Questions

It is essential to define the research questions so that these sufficiently involve and generate a sort of project consistent with what is expected from the study. The research questions should not only prompt a direct answer, such as yes or no. (Saunders, Lewis and Thornhill, 2012).

In order to accomplish the purpose of the thesis, the research question is defined as follows:

- What are the patterns of used components in business models for SMEs operating in the biotech industry?

Contributory questions should be created to help answering the main research question (Saunders, Lewis and Thornhill, 2012). Therefore, the authors have chosen to define a contributory research question for this thesis:

- What are the main motives for choosing particular components in business model/s by SMEs operating in the biotech industry?

1.5 Definitions

Biotech

The application of science and technology to living organisms, as well as parts, products and models thereof, to alter living or non-living materials for the production of knowledge, goods and services (OECD, 2013).

Business Model

Business models illustrate the design and architecture of the value creation process for companies (Chesbrough, 2010). The concept and framework of business models will be presented in the frame of reference.

Small and Medium Enterprises, SME

For an enterprise to be seen as a SME, it needs to have less than 250 employees and either have a turnover, which not exceeds €50 M and/or a balance sheet totalling less than €43 M (The Commission Of The European Communities, 2003).

Components of a Business Model

A component in a business model is argued by IBM consulting service (2005) to be a modular building block that defines the enterprise, such as customer relationship, supplier networks, or capabilities in the enterprise. Together these aim to build a complete business model that illustrates how the company create value to its customers. The concept of components will be presented in the frame of reference.

2 Methodology and Method

This section describes how the research was conducted including the research philosophy, research design, and data collection and analysis. It will also include a verification of the credibility and give arguments for the chosen method.

Saunders, Lewis and Thornhill (2012) state there is a difference between methodology and method: the method refers to the practical work and procedures used to obtain and analyse data. This includes for example the planned interviews, digital questionnaires, and interpretation and analyse of data. The term methodology refers to the theory behind the research and how it should be conducted.

2.1 Research philosophy

Saunders, Lewis and Thornhill (2012) argue that we make assumptions in all stages of our research. The assumptions shape how researchers understand research questions, the methods that are chosen and how the findings are interpreted. Researchers must be aware of the subjective and socially constructed meaning, which is expressed about the research topic. The adopted research approach will reinforce the research strategy, the method and the outcome of the research (Crotty, 1998; Saunders, Lewis and Thornhill, 2012).

In this research the authors have chosen an interpretive approach for its strength in understanding social features, such as emotions and values.

2.2 Methodology

Saunders, Lewis and Thornhill (2012) argue that the researchers make assumptions in all stages of the research. The assumptions shape how the researcher understands the research questions, the method, and how the findings are interpreted and analysed. Researchers must be aware of the subjective and socially constructed meaning expressed regarding the research topic. The adopted research approach will reinforce the research strategy, the method and the outcome of the research (Crotty, 1998; Saunders, Lewis and Thornhill, 2012).

In every research it is pertinent that the researcher gathers truthful and valid empirical data (Saunders, Lewis and Thornhill, 2012). If the researchers ask questions that cannot be applied to the study, the researchers will not be able to use the answers for the analysis and conclusion. Because researchers assume and interpret the data, they have to focus on a philosophy, which will prevent them from subjectively interpret the answers (Saunders, Lewis and Thornhill, 2012).

The authors have previously discussed that there is little research conducted in the field of business models for SMEs operating in the biotech industry and that existing research tends to be descriptive rather then exploratory. The differences between descriptive re-

search and exploratory research are that descriptive research can be an extension of exploratory research, and that the data often are collected through quantitative methods (Saunders, Lewis and Thornhill, 2012).

2.2.1 Exploratory Studies

Exploratory studies are mainly carried out when there is little or none earlier research to refer to (Saunders, Lewis and Thornhill, 2012). Because research of business models in the biotech industry is a rare field of study, exploratory approach is suggested.

Exploratory, descriptive and explanatory are three different approaches of how to conduct a research when choosing a research approach. Saunders, Lewis and Thornhill (2012) describe the exploratory research method to be a valuable mean to ask open questions in order to find patterns and gain in-depth understanding about a topic. It is especially useful if the researcher aims to illuminate the understanding of a problem. One of the benefits with exploratory research is that it is flexible and allows for change in the light of new data (Saunders, Lewis and Thornhill, 2012).

This research was designed to explore existing business models through several case studies. Therefore this research was conducted in a qualitative manner and the data was collected from questions and discussions via emails, phone calls and interviews as well as through literature search.

The authors chose to conduct a research, which enabled in-depth understanding of the specific cases and also due to its ability to manage time and geographical constraints. This was to fully understand the design of business models in SMEs in the biotech industry. This would argue to use and emphasise a qualitative approach rather than quantitative approach due to the nature of this research.

A quantitative approach would have allowed the authors to collect answers through for example a digital survey including a large sample. On the other hand, the qualitative method and approach allowed the authors to do an in-depth exploration through interviews, which is also argued by Gummesson (2000) to be a useful tool for business and management research.

2.2.2 Research Approach

Saunders, Lewis and Thornhill (2012) state that when conducting a research, it is important to choose a research approach that fits the purpose of the research topic and enables the researcher to fully gain from the information gathered. Saunders, Lewis and Thornhill (2012) present three approaches from which to decide on the design of the scientific research:

- Deduction
- Induction
- Abduction

According to Saunders, Lewis and Thornhill (2012), it is important to realize the differences between these three approaches when deciding on which to adopt for the research. Table 2.1 from Saunders, Lewis and Thornhill (2012) shows the differences between these. All approaches help to determine the starting point for the research and the proceeding work.

The choice of research approach is argued to enable a more informed decision regarding the research design. The choice is derived from the configuration, which involves what kind of evidence is gathered, and where and how it is interpreted in order to provide unbiased answers to the initial research questions (Saunders, Lewis and Thornhill, 2012).

Table 2.1 Deduction, Induction and abductive: from reason to research (Saunders, Lewis and Thornhill, 2012, p. 144)

	Deduction	**Induction**	**Abduction**
Logic	In a deductive inference, when the premises are true, the conclusion must also be true	In an inductive inference, known premises are used to generate untested conclusions	In an abduction inference, known premises are used to generate testable conclusions.
Generalizability	Generalising from the general to the specific	Generalising from the specific to the general	Generalising from the interactions between the specific and the general
Use of data	Data collection is used to evaluate propositions or hypothesis related to an existing theory	Data collection is used to explore a phenomenon, identify themes and patterns and create a conceptual framework	Data collection is used to explore a phenomenon, identify themes and patterns, locate these in a conceptual framework and test this through subsequent data collection and so forth
Theory	Theory falsification or verification	Theory generalisation and building	Theory generation or modification incorporating existing theory where appropriate, to build new theory or modifying existing theory

Since the purpose of this research was to explore the design of business models, the authors chose to use the abductive approach.

The abductive research approach was chosen from the context of enterprises in the biotech industry, since it enabled the authors to move between theory and findings in order to create reliable conclusions and be able to analyse the findings (Saunders, Lewis and Thornhill, 2012). According to Saunders, Lewis and Thornhill (2012) abductive approach is helpful when researchers are looking for new insights through describing what is happening, asking questions and comparing empirical data with existing theories. Saunders, Lewis and Thornhill (2012) also emphasise the advantage of the exploratory research's flexibility. However, this require the researchers to be open for change as new insights can appear, which might change the focus of the research itself.

2.2.3 Use of the Abductive Approach

Saunders, Lewis and Thornhill (2012) describe the abductive approach to move back and forth between theory and empirical findings, combining the deductive and inductive approach. The research begins from a surprising observation and then working towards a plausible theory of how this could have occurred (Ketokivi and Mantere, 2010).

In this study, the collected data was combined and integrated in an overall conceptual framework that was compared with existing theory.

After the initial data was obtained, the authors decided to proceed and start researching about business models of other SMEs and find existing theoretical data to validate the findings. This would give a brief overview of the research topic to fully gather valid data, which would be useful for the research.

The qualitative data was obtained from participating companies through interviews with a member of the management team. Every interviewee had relevant qualifications and expert knowledge of the subject to answer the research questions in this study. Before conducting the interviews, the authors made sure that the contact was positioned in the management team and possessed knowledge regarding the business strategy and business model.

The qualitative method was preferred since these interviews and dialogs mattered in understanding the design of their business models. This also enabled discussions and clarification of critical points and grey areas as paramount in contrast to the already gathered qualitative data. Due to the nature of this study, the qualitative research approach helped fulfilling the purpose of this thesis since it focuses on behaviours, feelings and human emotions, and not on presenting any numerical data (Körner, Ek and Berg, 1984).

2.3 Method

The method is the description of how the researchers work to gather and analyse the data for the thesis. The method assists in establishing a solid foundation for how the researchers explore the design of business models for SMEs operating in the biotech industry.

The authors focus on SMEs in the biotech industry because of the argued financial and operational obstacles that these companies face. This was stated in an interview (see Table 4.1) conducted with SWE-A2. After the interview, the authors conducted a pre-study on the topic, were further support was found.

In the interview with SWE-A2, "33 Listan" (33 Listan, 2013) was introduced to the authors. The "33 Listan" presents Sweden's 33 most promising technology companies. The "33 Listan" of 2012 and 2013 included SMEs operating in the biotech industry. The authors then chose to approach the companies that were operating in the biotech industry. All the companies that the authors contacted responded and showed interest to participate in this study.

SWE-B, which was included in this research, was not found through the "33 Listan". That company was introduced to the authors during the interview with SWE-A1. That SME was

contacted because they fitted well in the research profile as a SME operating in the biotech industry. By including SWE-B, the authors believed that the company could bring some insights to the design of business models in the biotech industry.

2.3.1 Data Collection

Data can be either primary or secondary. The researchers themselves collect primary data for instance trough questionnaires or interviews. Secondary data on the other hand, is collected from previous researchers (Eriksson, 2011). Using existing data, i.e. secondary data, saves both money and time. However, the disadvantages are that it is not designed for the specific research area (Zikmund, 2000). Therefore, it is important to verify the collected secondary data and carefully examine it before using it (Eriksson, 2011).

In this study, data was collected from primary and secondary sources. According to Zikmund (2000), secondary data enables the researchers to build the work on past research.

2.3.1.1 Primary Data

Primary data was collected through interviews and a digital questionnaire with the participating companies, which will be presented later in this section. These were considered the main primary source since it was used to obtain the specific data with the purpose of answering the research questions. Saunders, Lewis and Thornhill (2012) state that interviews and questionnaires help gathering reliable data, relevant to the research questions.

2.3.1.2 Secondary Data

Secondary data regarding business models and their components, cover existing research, and was collected through Jönköping University library, through literature, handbooks and scientific journals. All secondary data was reviewed by looking at well-known and influential scholars as well as highly citied researchers so the authors could establish a good understanding of business models and its components. For the online literature research, the authors primarily used Google Scholar and Scopus.

Frequent key words used in the online information search were the following in different combinations, singular and plural and also different spellings due to the differences in American and British English:

- Business model
- SME
- Value creation
- Business architecture
- Strategy
- Biotech
- Biomedicine
- Dynamic
- System
- E-business
- Success factor
- Component
- Development intensive
- Innovation
- Entrepreneurship
- Value added sequence

The authors aimed to guide the reader through the section and create an understanding of theories to from a solid foundation. This was done by first introducing the business model definitions, and then guiding the reader through the available research in business models, its components, and the design.

2.3.2 Case Studies

Case studies focus on understanding the dynamics within its context and can involve single or multiple cases, as well as numerous levels of analysis. Eisenhardt (1989) argue that researchers should use more than one single case, where "between four and ten cases usually works well" (p.545). By using more than one case, the researchers enable theory creation and the empirical findings are likely to be more convincing (Eisenhardt, 1989; Yin, 2003).

The data collection typically combines methods such as archives, interviews, questionnaires and observations, where the evidence may be both qualitative and quantitative. The cases can be used to achieve several goals, such as describing, testing theories or generating a new theory (Eisenhardt, 1989).

The authors chose the case study approach to create an in-depth understanding of the research field. As Saunders, Lewis and Thornhill (2012) argue, case studies are often chosen in exploratory researches because it provides the possibility to ask follow-up questions and answer questions such as why, what and how.

Since this thesis aimed to explore business models, the case study method was suitable due to its focus. Through case studies, the authors could conduct in-depth interviews that allowed the researchers to find patterns that were particularly interesting for this study. On the other hand, if the authors had chosen to do a quantitative research, for instance by using questionnaires, it would have allowed the researchers to use questions with standard answers. However, it would also have restricted the authors from asking follow-up questions and prevented deeper understanding.

2.3.3 Interviews

Saunders, Lewis and Thornhill (2012) describe an interview as a meaningful conversation between two or more people. The aim of the interview was to explore the questions further and to apply the answers to the research. This helps to gather reliable data relevant to the objectives. In order to gather relevant information and data from the interview it is essential to be well prepared and to know how to proceed with follow-up questions from the given answers.

According to Yin (2009) one of the most important sources of information during a case study is the interview. The interviews were recorded, if allowed from the interviewed, to get a more accurate rendition of the interviews. One company disagreed to record the interview, which required the authors to take more notes during the interview instead of relying on the recordings in combination with the notes. The interviews in this thesis were focused interviews, were the people of interest were interviewed in order collect data.

To get unbiased answers, it was important that the questions were not aimed to lead the interviewee, and asked in a "why" manner and not in a "how", according to Yin (2009).

All interviews were conducted in a semi-structured manner, also called qualitative research interviews. The outline and categories of the interview questions were set from the categories of the frame of reference, once again to guide the reader through the thesis. The semi-

structured interviews were more flexible and did not strictly limit the answers as in structured interviews through pre-defined standardized questions (Saunders, Lewis and Thornhill, 2012). This also helped to get answers to follow-up questions, which emphasises the collection of relevant information.

It is essential to formulate and ask appropriate questions to explore the research topic. Saunders, Lewis and Thornhill (2012) present several different types of questions and what to avoid when conducting interviews.

Open questions allow and support the participant to make descriptive and developed answers.

Probing questions are used to explore already given answers, which are important to the research. These questions require guidance and focus.

Specific and closed questions could be used to confirm facts or an opinion.

Questions to avoid are leading questions and questions giving examples, this can lead to biased answers.

The design and categorization of the questions were derived from Morris, Schindehutte and Allen (2005) and acted as a guide during the interview. To collect the necessary data about which business model components that were used, the interviews were held with a member from the top management or one of the founding owners. The survey included the components in business models and questioned to what extend they were used or not in the respective company. The authors' goal with the interviews was to develop an in-depth understanding of how the different components impacted a business model, how they were used, and which ones the company focused on.

The authors held face-to-face interviews and telephone interviews. The telephone interviews were held via speakerphone and were recorded. All interviews had a range between 45 minutes to 1 hour 20 minutes depending on whether it was held via phone or face-to-face. The authors discovered the advantages of telephone interviews, because of easy access, speed and lower costs, which also were argued by Saunders, Lewis and Thornhill (2012). However, telephone interviews do not enable the researchers to establish a close personal contact with the participant, which could lead to not being able to observe the interviewees non-verbal response (Saunders, Lewis and Thornhill, 2012). The authors sought to eliminate these uncertainties by establishing personal contact via e-mail and conversations in order to ensure that the participant feel confident before conducting the interview.

The first interview was held with representative from a company, with whom the authors have had previous meetings and discussions on the topic. This enabled a relaxed conversation and time to practice the questions for the rest of the interviews. The framework shows an overview of different components. It allowed the participants to develop their answers for the authors to gain more in-depth information. It also enabled the authors to ask follow-up questions related to the participants answers.

Due to the sensitive information shared by the participating companies, SWE-A and SWE-B required that their names were not presented in this thesis. Therefore the authors have chosen to keep the names of all the companies unconnected with the answers presented in the empirical findings. The authors do not value the direct connections between the companies and their answers separately. This was due to the fact that the research aimed to find the emerging similar patterns and not to separate the companies' answers from each other.

2.3.4 Questionnaires

An online questionnaire is a data collection method where the participant takes part in a questionnaire via the Internet or an intranet. The interviewer is not present but the participant reads and answers the questions on their own before submitting the answers electronically (Saunders, Lewis and Thornhill, 2012).

In order to increase the validity of the empirical data and especially to increase the reliability of the in-depth open questions, the authors chose to conduct an additional online questionnaire with the interviewees. The questions were derived from the framework of Morris, Schindehutte and Allen (2005) see Table 3.2. The purpose of this was to validate how the business model components were used in their company. Furthermore, the authors compared the answers in the questionnaire with the open questions from the interviews in order to find and validate patterns.

2.3.5 Data Presentation and Analysis

Qualitative data is described as non-numeric data or data which has not been quantified. The data that was collected for this research is of qualitative character, which according to Saunders, Lewis and Thornhill (2012) requires the data to be analysed in order to make the data useful.

The collected data was sorted in different categories in order to create coherence. These categories were derived from the framework of Morris, Schindehutte and Allen (2005).

The interviews were held in Swedish. This required the authors to translate all the answers to English in order to use it as empirical data in this thesis. All the recordings from the interviews were transcribed to increase the reliability and trustworthiness of the results. The transcriptions of the interviews were done no later than 2 days after the respective interview to increase accuracy. Warren and Karner (2010) argue that the transcriptions should be done as soon as possible after the interviews. To enable the reader to trace the origin of the data and follow the conclusions, the transcribed interviews are available upon request from the authors. Since the interviews were very long and a lot of data was collected during the discussions, only the most relevant information and answers for this thesis were presented in the findings and analysis. By excluding irrelevant information, it also enhances and strengthens the credibility of the analysis and disregards the non-valid answers (Saunders, Lewis and Thornhill, 2012).

2.3.6 Research Quality

The next three sections will discuss the reliability and validity of the research. Saunders, Lewis and Thornhill (2012) state that there are two main concerns when securing the quality of the research, reliability and validity. Reliability refers to the credibility and the repetitiveness of the research, while validity refers to coherence between the empirical and secondary data.

2.3.6.1 Reliability

Saunders, Lewis and Thornhill (2012) describe reliability of research as whether the data collection techniques and analytic process would prove consistent if they were repeated. Saunders, Lewis and Thornhill (2012) argue that it is not necessarily easy to ensure reliability, due to general threats: participant error, participant bias, and researcher error and researcher bias. In order to avoid these threats, the researcher is required to be fully transparent in the report and allow others to make judgements and to be able to repeat the study (Saunders, Lewis and Thornhill, 2012). Saunders, Lewis and Thornhill (2012) present threats that researcher should avoid:

Participant error includes altering the participant's performance in a way, which can affect the participant's answers.

Participant bias includes any factor that can encourage a false response from the participants through for example fear of being listened to, instead of ensuring anonymity.

Researcher error includes altering with the interpretation from the researcher.

Researcher bias includes factors, which encourages bias in the researchers' response.

2.3.6.2 Validity

Reliability itself cannot ensure quality of the research; different kinds of validity are also needed to guarantee quality. These three additional concepts are defined as construct validity, internal validity and external validity. To ensure the trustworthiness of the research it is crucial to meet all these standards throughout the entire research (Saunders, Lewis and Thornhill, 2012; Yin, 2003).

The researcher is expected to obtain the empirical data as correctly as possible. The result in this thesis, is a reflection of the analysed data, and has not been exposed to any of the internal, external or construct validity threats (Saunders, Lewis and Thornhill, 2012). In order to test the validity of this research, external validity and construct validity tests were used.

Construct Validity

The construct validity requires the development of adequate measures envisioned to capture what is intended to be captured, and should include the entire theoretical foundation. When conducting case studies the researchers are evaluated by their limitation to develop reasonable sets of results and failure to objectively analyse and gather data (Saunders, Lewis and Thornhill, 2012).

The authors promoted addressing this study from the perspective of the industry rather than from the SMEs themselves. This would also prove to be more rewarding, since the research questions could be answered by empirical findings from several cases operating in the same industry. This is supported by Yin (2003; 2009) and Eisenhardt (1989) who argue for more than one source of evidence in a research. The authors have worked to fulfil this by gathering empirical data from several relevant sources and not from one single source to ensure validity. In order to further validate the empirical findings and align with the theoretical foundation, the thesis was presented to the studied cases to receive feedback and improve the trustworthiness of the result.

External Validity

To gain external validity the research requires the use of replication logic in the multiple-case studies (Saunders, Lewis and Thornhill, 2012). This was achieved through the study of several cases during the empirical research. This is applied to SMEs in the biotech industry, which could act as an input and be applicable to other SMEs in the same industry when they are assessing and designing their business models. A limitation to the study is that only case studies with qualitative interviews were conducted and that no quantitative data was gathered to support the findings. However, the authors suggest that the findings and results can benefit SMEs in the biotech industry as an analytical generalization.

3 Frame of Reference

This section will guide the reader through the definitions and design of business models.

The usefulness contra uselessness of business models has been argued in management literature for decades (Baker, Addams and Davis, 1993; Honig and Karlsson 2004; Magretta, 2002). Several definitions are presented for the term business model. Shafer, Smith and Linder (2005) present 12 definitions from established publications between the years 1998-2002. This indicates that there have been and are disagreements between the researchers in accepting a general definition. Shafer, Smith and Linder (2005) argue that this might be the result of that researcher's publications generate different definitions due to the focus on the specific research area rather than on the finding of a general accepted definition.

3.1 Business Models

Business models enable firms to seize market opportunities, stay flexible and expand each part of its business interdependently to contribute value (Viscio and Pasternack, 1996). Mayo and Brown (1999, p.20) refer to business models as "the design of key independent systems that create and sustain a competitive business." Morris, Schindehutte and Allen (2005, p.727) define a business model as a "model of representation of how an interrelated set of decision variable in the area of venture strategy, architecture, and economics are addressed to create sustainable competitive advantage in defined markets". In the article by Shafer, Smith and Linder (2005, p.202), business models are described as a "representation of a firm's underlying core logic and strategic choices for creating and capturing value". Sabatier, Mangematin and Rousselle (2010) argue that business models help enterprises to eliminate uncertainties by developing their activities and generate revenue streams in order to increase market value. "The business model outlines how the company generate revenues with reference to the structure of its value chain and its interaction with the industry value system", (Fisken and Rutherford, 2002). The authors have listed several business model definitions where each expresses the value creation process of the company. Therefore, the authors have found that the value creation process is an important part in business models.

The business model's strength is its focus on how all the components of the system fit and work together. However, a business model is not to be mistaken for a strategy (Shafer, Smith and Linder, 2005). Depending on which author that is referred, strategy is seen differently. Strategy can be summarized to involve a pattern, plan, position or perspective of the value creating process (Shafer, Smith and Linder, 2005; Magretta, 2002). Shafer, Smith and Linder (2005, p. 203) state, "Strategy is sometimes viewed as a pattern of choices made over time."

Chesbrough and Rosenbloom (2002) argue that a successful business model illustrate a core logic, which is exploratory and creates technical potential, to realize and capture eco-

nomic value. It shows that the most effective business models unlock value from existing technology and use its core logic to explore and search for new alternative possibilities and activities (Chesbrough and Rosenbloom, 2002).

Each component has direct impact on the business model and will affect the process of creating value. Furthermore, each component illustrates how the company captures value (Magretta, 2002; Malone, Weill, Lai, D'Urso, Herman, Apel and Woerner, 2006). The components that build business models should be as comprehensive as possible, and not only be presented by one or two factors. It should reflect the enterprises strategic choices and the core logics of the process (Shafer, Smith and Linder, 2005).

The authors have created a table (see Table 3.1) of the most frequently used components in business models by comparing the eleven most cited research articles. From these articles, the authors found seven major components that are mentioned in several of the articles.

The seven components the authors listed are:

1. Value creation
2. Customer
3. Internal capability
4. Competitive strategy
5. Revenue
6. Financing
7. Legal/technology

From the eleven articles studied by the authors, different researchers in different combinations covered all seven components. The components that were most frequently used were value creation, mentioned in all articles, revenue model, mentioned in 10 of 11 articles, and internal capabilities, mentioned in eight of them. The least mentioned component was the legal/technology component and was only brought up by Alt and Zimmermann (2001) and Betz (2002).

The earliest dated article, presented in Table 3.1, included only three different components (Viscio and Pasternack, 1996). These components were value creation, internal capability and competitive strategy. Business models today include more components, which make later publications, by for example Shafer, Smith and Linder (2005) and Morris, Schindehutte and Allen (2005), more comprehensive and more useful for this research.

Shafer, Smith and Linder (2005) have categorized their findings into four components: (1) strategic choices, (2) value creation, (3) value network and (4) value capturing. These categories further hold more subcomponents, which is similar to the categorization of components by Morris, Schindehutte and Allen (2005). Morris, Schindehutte and Allen (2005) divide their components into six different categories, each including subcomponents. In contrast to Shafer, Smith and Linder (2005), Morris, Schindehutte and Allen (2005) have developed a clear structure of the subcomponents, which can be evaluated and selected for the design of a business model. The design of business models will be presented later in the frame of reference.

The authors have chosen the framework of Morris, Schindehutte and Allen (2005), which include six components that will be used as a foundation for the frame of reference and analyse of the empirical study. The authors find this framework suitable since it contains six of the seven most frequently used components in business models and emphasises the financing component. Willemstein, van der Valk and Meeus (2007) argue that the financing component is essential because of the need of additional sources of revenue, since SMEs in the biotech industry rarely have any product that generates operating revenue.

The authors argue that Morris, Schindehutte and Allen's (2005) framework is appropriate for the research in the biotech industry. This is because business models "differ for ventures with more moderate versus more ambitious aspirations". (p.729)

Table 3.1 A summary of components in business models from existing authors (Holm-Bergquist and Ödmark, 2013)

Authors	Covered Business Model Components						
	Value creation	Customer	Internal capability	Competitive strategy	Revenue	Financing	Legal/technology
Morris, Schindehutte and Allen, 2005.	x	x	x	x	x	x	
Chesbrough and Rosenbloom 2002.	x	x		x	x		
Dubosson-Torbay, Osterwalder and Pigneur, 2001.	x	x	x		x	x	
Petrovic, Kittle and Tek-sten, 2001.	x	x	x		x	x	
Viscio and Pasternack, 1996.	x		x	x			
Betz, 2002.	x		x	x	x	x	x
Hamel, 2000.	x	x	x	x	x		
Timmers, 1998.	x		x		x		
Linder and Cantrell, 2000.	x	x	x		x	x	
Alt and Zimmermann, 2001.	x	x		x	x	x	x
Shafer, Smith and Linder, 2005.	x	x	x	x	x	x	

3.2 Components of Business Models

According to Morris, Schindehutte and Allen (2005), there are six business model component areas, which enterprises need to take into account in order to have a functional business model.

Table 3.2 Components of business models (Morris, Schindehutte and Allen, 2005, p. 704)

Component 1 *(factors related to the offering): How do we create value?*

(Select one from each set)

- Offering: primarily products/primarily service/heavy mix.
- Offering: standardized/some customization/high customization.
- Offering: broad line/medium breadth/narrow line.
- Offering: deep line/medium depth/shallow lines.
- Offering: access to product/product itself/ product bundled with other firm's product.
- Offering: internal manufacturing or service delivery/ outsourcing/ licensing/reselling/value added reselling.
- Offering: direct distribution/indirect distribution (if indirect: single or multichannel)

Component 2 *(market factors): Who do we create value for?*

(Select one from each set)

- Type of organization: B-to-B/B-to-C/both.
- Local/regional/national/international.
- Where customer is in value chain: upstream supplier/downstream supplier/government/institutional/wholesaler/retailer/service provider/final consumer.
- Broad or general market/multiple segment/niche market.
- Transactional/relational.

Component 3 *(internal capability factors): What is our source of competence?*

(Select one or more)

- Production/operating system.
- Selling/marketing.
- Information management/mining/packaging.
- Technology/R&D/creative or innovative capability/intellectual.
- Financial transactions/arbitrage
- Supply chain management
- Networking/resource leveraging

Component 4 *(competitive strategy factors): How do we competitively position ourselves?*

(Select one or more)

- Image of operational excellence/consistency/dependability/speed.
- Product or service quality/selection/features/availability.
- Innovation leadership.
- Low cost/efficiency
- Intimate customer relationship/experience.

Component 5 *(economic factors): How do we make money?*

(Select one from each set)

- Pricing and revenue source: fixed/mixed/flexible.
- Operating leverage: high/medium/low.
- Volumes: high/medium/low.
- Margins: high/medium/low.

Component 6 *(personal/investor factors): What are our time, scope and size ambitions?*

(Select one)

- Subsistence model
- Income model
- Growth model
- Speculative model

Component One *(factors related to the offering)*

The first component included in Morris, Schindehutte and Allen's (2005) framework illustrates how the company creates value. This component is included in all of the papers showed in Table 3.1 created in this thesis. Petrovic, Kittle and Teksten (2001), which contributed to the framework, describe the value creation process as where value is created or added from the core competence to the customer. Alt and Zimmerman (2001) define the value creation process as a detailed view of the mission and the structure of the business model. According to Morris, Schindehutte and Allen (2005), the decisions in component one aim to address the nature and/or mix of product and service the company aim to deliver and how it shall do so. "There is no business without a defined value proposition." (Morris, Schindehutte and Allen, 2005, p. 729).

Component Two *(market factors)*

The second component is concerned with whom the company will create value for. Information such as demographic or geographic distribution of customers is important and can create new business opportunities according to Dubosson-Torbay, Osterwalder and Pigneur (2001). Linder and Cantrell (2000) include the importance of knowing the customer's needs and the process of gathering information. Hamel (2000) takes it one step further and includes the anticipation of the customer. Morris, Schindehutte and Allen (2005) focus on whom the firm will sell its products to, and where in the value chain the company will be active. Firms need to establish its scope and what competences it possesses. The company must also evaluate its resource requirements and organisational configuration. The component must be able to answer how the customers are to be reached, served and maintained (Petrovic, Kittle and Teksten, 2001). "Failure to adequately define the market is a key factor associated with venture failure." (Morris, Schindehutte and Allen, 2005, p.730)

Component Three *(internal capability factors)*

In the third component, the internal source of advantage is discussed. Here, core competence is important and how to benchmark the own company against competitors. The company could develop and enhance these core competences. Dubosson-Torbay, Osterwalder and Pigneur (2001) suggest that companies should focus on their core competences and relay on partners' network to handle the non-core competences. By building around this core competence, it is argued that the company can generate a general source of advantage (Morris, Schindehutte and Allen, 2005). There are three resources, according to Dubosson-Torbay, Osterwalder and Pigneur (2001) that can be combined in different ways to generate competences. These are tangible, intangible and human assets. The company should focus on what their source of competence lies (Morris, Schindehutte and Allen, 2005).

Component Four *(competitive strategy factors)*

The fourth component regards the position of the company in the market. Morris, Schindehutte and Allen (2005) state that the challenge is to identify significant points of difference that can be undertaken and exploited. Even though this component focus on strategy, Shafer, Smith and Linder (2005) state that the business model is not a strategy, even though the business model facilitates analysis, testing and validation of a firm's strategy. Chesbrough and Rosenbloom (2002) state that one of the differences between a strategy and a business model is that the business model is built up with the focus to create value for the customers whereas a strategy aims to deliver sustainability throughout time. Hamel (2000) argues that a differentiation against competitors is vital and Alt and Zimmerman (2001) stress the importance of thinking outside the box. Morris, Schindehutte and Allen (2005) stress the importance of finding what they call untapped, blue ocean markets.

Component Five *(economic factors)*

The fifth component regards how the company will make money. This component is to provide a consistent logic regarding how to earn profit. According to Dubosson-Torbay, Osterwalder and Pigneur, (2001), this relates to the ability to deliver value to its customer in return for money and thereby generate revenue. Petrovic, Kittle and Teksten (2001) simply describe the revenue model as "the logic of what, when why and how the company receives compensation in return for the products" (Petrovic, Kittle and Teksten, 2001, p. 3). Moreover, Morris, Schindehutte and Allen (2005) ask if the company should focus on higher or lower volumes in terms of both market opportunity and internal capacity. Alt and Zimmerman (2001) include that the company must carefully evaluate how they will earn money in short term and in mid-long perspective. "Revenues are the bottom line of a business model" (Alt and Zimmerman, 2001, p. 7).

Component Six *(personal/investor factors)*

The sixth and last component included in Morris, Schindehutte and Allen (2005) framework, focuses on different types of founding and investment strategies, time horizon, scope, and size ambitions. "Differences among venture types have important implications for competitive strategy, firm architecture, resource management, creation of internal competencies and economic performance" Morris, Schindehutte and Allen (2005, p.730). Morris, Schindehutte and Allen (2005) point out that each business needs to know its time, scope and ambitions. This is also known as the investment model (Morris, Schindehutte and Allen, 2005). Petrovic, Kittle and Teksten (2001) state that an enterprise must utilize money in respect to assets and liabilities over time.

Component Seven (*legal and technical aspects)*

Accenture's report by Linder and Cantrell (2000) also support what Alt and Zimmerman (2001) mention under the legal component that includes patent and protection of inventions in order to secure future revenue.

Alt and Zimmerman (2001) divide this component into two separate but they are discussed together. These two components can act as constrains or requirements that has to be meet and thereby influence the business model. Betz (2002) also includes the influence of future technology developments.

The authors have chosen the component framework of Morris, Schindehutte and Allen (2005), even though component seven is absent. However, the authors argue that it is included in Morris, Schindehutte and Allen (2005) fourth component. Therefore the seventh component, legal/technology, will not be found as a separate sub heading in the empirical findings. However, it will be discussed under component four, competitive strategy factors.

3.3 Design of Business Models

Chesbrough and Schwartz (2007) argue that the most important part and requirement when designing a business model, is to determine the business objectives. Components, which are important in some parts of the company, could still be inadequately matched to achieve the overall business objective. To achieve success with an efficient business model, the company must include their corporate strategy in the business model in a way that exploits information asymmetries. Morris, Schindehutte and Allen (2005) state that the company's sustainable advantage depends on the entrepreneurial ability to apply unique approaches to one or more components. Where competitors may easily copy a company's components, this unique combination is harder to replicate. The sustainability of the model also depends on the consistency of the internal and external fit (Morris, Schindehutte and Allen, 2005). The internal fit includes consistency and reinforcement among the six components. For example, a low marginal product may require high volume in order to be successful. The external fit concerns the fit between the six components and the external environment. If the environment condition changes, an adaption of the component might be required and as the company develops and learns its ability to set rules and guidelines that further strengthen its advantage (Morris, Schindehutte and Allen, 2005). As mentioned by Mayo and Brown (1999, p.22), "the business models primary value is that it recognizes that non-financial indicators are critical to the organization's competiveness."

Even though many publications argue for the benefit and positive sides of business models, there are also problems with business models if they are misused by for example managers and executives (Shafer, Smith and Linder, 2005; Magretta, 2002; Malone et al., 2006). Shafer, Smith and Linder (2005) present four different problems of business models Shafer, Smith and Linder (2005) define these as, (1) describe the assumptions behind the core logics, for example an imperfect assumption about the future, (2) limitations in the strategic choices, disagreement between decisions regarding operating revenues and financing revenues, (3) little understanding of the value creation and value capture process, for example

expanding the features on a product verses standardizing it and (4) assumptions about the value network for example dependencies on one specific supplier.

The most successful companies have generated revenues by implementing several business models at the same time, in order to serve diverse types of customers. The changing business environment, caused by fast development of technology and communications, has also created new business opportunities. This has made business models one way of measuring performance variations of companies in the same industry (Morris, Schindehutte and Allen, 2005; Malone et al., 2006).

4 Empirical Findings

In this section, the authors will start by introducing the cases selected for this study and then present the results found from the interviews.

As important it is to collect the data, it is vital to present data in a structured manner for the findings to be clearly understood. During the data collection, the authors recorded and kept notes of the interviews in order to minimize misunderstandings. The interviews were held in a relaxed manner and the authors emphasised in-depth answers. In order to prepare the interviewee, the authors held a pre-interview where the purpose of the study was described. This was done in order to get to know the company and create a personal contact with the interviewee. After the face-to-face or telephone interviews were made, the authors sent out the digital questionnaire for the interviewee to answer what components they used in in their business, in order to validate the findings (see Table 4.2).

4.1 Research Guide

The first research question of this thesis is: "What are the patterns of used components in business models for SMEs operating in the biotech industry?" This question will be answered through the qualitative interviews held with the companies in combination with the digital questionnaire.

The contributory question that was created to help answering the main research question was: "What are the main motives for choosing particular components in business model/s by SMEs operating in the biotech industry?" This question will be answered based on the interviews presented in Table 4.1.

4.2 Empirical Background

Code names were given to the companies in order to keep a confidentiality agreement, which were required by two of the companies. The code names were made by using the following formula: country code (SWE) + assigned letter for the company (A-E) + digit of the representative from the company (1-2) in example "SWE-A1". Therefore, if the authors interviewed more than one representative from the company, there will exist two or more codes, in example SWE-A1 and SWE-A2. The authors will refer to the specific interview/interviewee by using the whole code and refer to the whole company by using only the first two parts of the code, in example SWE-A.

Table 4.1 Conducted interviews

Code name	Short description	Date of interview
SWE-A1	Established in 2009 and works in the biotech sector.	21th of February 2013
SWE-A2	Established in 2009 and works in the biotech sector.	15th and 21th of February 2013
SWE-B1	Established in 1998 and works in the biotech sector	25th of February and 13th of March 2013
SWE-C1	Established in 2005 and works in the biotech sector	2nd of April 2013
SWE-D1	Established in 2005 and works in the biotech sector.	18th of April 2013
SWE-E1	Established in 2009 and works in the biotech sector	23rd of April 2013

Case 1: SWE-A

SWE-A is located in Uppsala, Sweden and was founded in 2009. SWE-A has 6 employees.

- Founded by a researcher/investors
- Financed by private shareholders and subsidies

Case 2: SWE-B

SWE-B is located in Gothenburg, Sweden and was found in 1998, sold in 2006. SWE-B had 30 employees when the company was sold.

- Founded by researchers
- Financed by venture capitalist

Case 3: SWE-C

SWE-C is located in Stockholm, Sweden and was founded in 2003. SWE-C has 15 employees.

- Founded by researchers
- Financed by venture capitalists

Case 4: SWE-D

The company was located in Uppsala, Sweden and was founded in 2005 and defaulted in 2009. SWE-D had 4 employees.

- Founded by a researcher
- Financed by private shareholders

Case 5, SWE-E

The company is located in Stockholm, Sweden and was founded in 2009. SWE-E has 3 employees.

- Founded by a researcher
- Financed by government subsidies and later venture capitalists

4.3 Business Models

SWE-C1 describes the industry of the biotech enterprises as unique primarily in the alternatives of funding. The enterprises differ from others, what he calls the normal companies, with regular revenue models that are based mainly on operational revenue from sales. However, even though the companies, which were studied in this research mainly was financed through non-operational revenues, the funding still differed in the relation between owner capital and venture capital.

SWE-C1 has been working in the biotech industry for many years, which SWE-C1 describes as unique and special. Both the pharmaceutical industry and the biotech industry have been built on 'borrowed' money. The enterprises rarely have a product that generates large operating revenues.

SWE-C1 further says that the company's value is based upon expectations on future return and their revenue model is based on the sales of projects.

This was also supported by SWE-A1, SWE-A2 and SWE-D1, who stated that their enterprise entirely was financed through owner capital by selling shares or issuing new shares.

All five SMEs were founded within the premises of a University, also called University spin-offs. SWE-B1 and SWE-D1 both stated the importance of being supported by the reputation, workforce and resources from the University. This was described as crucial when continuing the research and aiming to commoditize the products or services. SWE-D1 also emphasized that their product and idea was detached from the University way too soon, which lead to lack of funding's and later even bankruptcy.

SWE-B differs somewhat from the other companies in how they funded their business. They only accepted venture capital at one time and did not seek additional money from for example VINNOVA[3] or the owners. SWE-C was the only company in the research that was making profit today. SWE-C1 stated in the interview that thanks to the finished product they had when leaving the University, they were able to put together a business model that could generate profit within two years.

[3] *VINNOVA is the Swedish Governmental Agency for Innovation Systems. VINNOVA aim to promote sustainable growth by improving conditions for innovations, as well as funding needs-driven research.*

SWE-A1 and SWE-A2 said that after a recent turnaround in the company, in which, they have engaged the customer to a higher degree they could see a more lucrative future. SWE-A1 said, by not only look to what the researcher wants to develop, but also take market demand into account, we have changed our focus and made some huge progress regarding product development. This is something also confirmed by SWE-C, whose products were developed together with its own customer, "for researchers by researchers". This resulted in a product that had a demand from inception.

4.4 Components of Business Models

The questions in the survey were derived from Morris, Schindehutte and Allen's (2005) (see Table 3.2) and focused on the subheading components of business models. The questions and answers are presented in appendix one to five (see Table 4.2).

Table 4.2 Survey answers

Code name	Link to appendices
SWE-A	See Appendix I
SWE-B	See Appendix II
SWE-C	See Appendix III
SWE-D	See Appendix IV
SWE-E	See Appendix V

The authors earlier chose to categorize the components of the business model in line with Morris, Schindehutte and Allen's (2005) framework. Therefore, the authors have decided to present both the findings and analysis of the business model components in the same section. This is to guide the reader through each component, from finding to analyse.

4.5 Design of Business Models

SWE-A

SWE-A1, said that when he stepped in as the CEO the company lacked a stated business model and the scope of the company was not clear. The researchers were aiming to produce a certain product while the sales team was pitching another product to the customers, a product that was not in line with what the researchers were developing. SWE-A1 decided to hire an external consultant as Marketing Director, SWE-A2 in order to develop a clearer scope. After some changes in the company, the scope was adjusted to fit what the market and customer demanded, and standardization on top of the agenda. In the interview with SWE-A1, it was also mentioned that they were looking for other suppliers in order not to become too dependent on one single source.

SWE-A1 focused on obtaining more founding in the form of different venture capitalists, government founding and owner capital. SWE-A2 was approaching new potential customers and the research department now got feedback from what the market was asking for. After becoming more customer-focused, SWE-A1 can see a positive curve of orders and after completing the standardization process, they hope for even more orders.

SWE-B

The company was formed by a group of scientists at the University of Gothenburg. The researchers from the University thought it was time to try something new, a new way of making revenue, instead financing from government subsidies and through sponsoring from large pharmaceutical corporations. They applied for venture capital and started a limited company, where they brought some ideas from the university into the company.

During that time, SWE-B already had a running project. This project was driven by researchers from the University of Gothenburg and was financed by a large pharmaceutical company. SWE-B could transfer this project to their company, and that helped SWE-B value the company in order to attract more investors. From that time, SWE-B has managed to survive by raising more venture capital and also by selling some of the projects that they worked on. In the end SWE-B managed to sell the whole company to a larger corporation.

SWE-C

SWE-C was initiated after a successful University project and their product was developed in order to fulfil their own demands. After the project ended the demand for their products remained. The product developed by them was seen as superior to the once already existing. Thus business opportunity was discovered. Some of the researchers decided to break out from the university with the finished product and start to commercialize it. SWE-C1 stated that in the beginning they brought in two investors that helped them get the company started and after just a little bit more than two years the company was making profit by selling a premium product at a premium price. SWE-C are now currently working with broaden their product line in order to meet future customers demand.

SWE-D

SWE-D1 was asked to become CEO of SWE-D in January 2008 and was employed in April 2008. The researcher that founded the company already had a developed product, which was brought into the company from the University of Uppsala. There were no consumers demanding the product when SWE-D1 entered the company. Hence, SWE-D1's role was to act as the marketing manager and to make new contacts with investors.

The value of the company and product were to be developed through evidence based publications via clinical studies and documentation. SWE-D1 argues at this point the partners and customers were merged that was negative for SWE-D, in terms of the design of their business model.

SWE-E

The design of the business model was stated by SWE-E1 to be very important in this industry. However, SWE-E did not have a official business model. SWE-E1 argued that professors developing products for the market most often lack the ability to capture the customers' demand. In order to improve the value creation process, SWE-E had recently hired and external CEO for this purpose. The researchers and professors were argued only to focus on the development of the product and not what actually suited the market. SWE-E1 stresses that in all the start-ups SWE-E1 has been involved in, SWE-E1 faced new obstacles. In each case, you learn to be increasingly precise and focused on what the actual value of the product is and how the market will interpret and use it. Even though the professor or researcher argues that the products is the absolutely best on the market, it is not certain that the market is ready for it or it even fits in the market environment.

5 Analysis

In this section, the authors will discuss the findings and analysis with the foundation of the frame of reference.

This thesis focuses on the exploration of business models in the biotech industry where the authors analyse and discuss the design of business models found in the empirical study. The authors refer to the background of this thesis were it is presented that SMEs in the biotech industry seem lack in competence of realizing its research and commoditize their products. This research has led to interesting and important findings that are presented in this section. These findings have also resulted in new ideas and topics, which could be developed and researched further. These new ideas and topics will be discussed in the last section.

5.1 Business Models

Many authors, presented in the frame of reference of this study, argue that a business model should illustrate how the enterprises create value to its customers. The findings show that lack of connection and focus of some components increases the risk of facing financial problems.

Even though the findings are based on five biotech SMEs, the patterns are almost the same. This would indicate that other SMEs in the same industry could recognize several of the obstacles found in this research. In order for a business model to prove effective, researchers have argued what should be included in business models and how these could be designed.

All the companies knew and emphasised the importance of illustrating their value creation process and most important how their company could be trustworthy in the industry were they operated. However, there was still lack in the alignment and importance of the connection to the consumer and the customer. All the articles included in this study highlighted the importance of customer focus when designing a business model. And even though all the studied companies could describe the importance of customer focus, they still did not fully understand how to turn these customer demands into action.

Throughout the study it became clearer how important the scope of the business was. If the company was unable to undoubtedly present the scope, it was also found that the company faced problem focusing and prioritizing their strategic actions. If the company were unable to prioritize its strategic actions, they are also argued by the authors to face problems when breaking down their business model.

5.2 Components of Business Models

In this section, both the findings and the analysis of each component derived from Morris, Schindehutte and Allen (2005) will be presented in order to guide the reader through the author's connections and thoughts throughout the findings and existing research.

5.2.1 Findings of Component One (factors related to the offering)

SWE-A

SWE-A creates value by offering the markets most sensitive product within their business field. They are developing and improving their already existing product, which already exists on the market. They are constantly looking for ways to improve and make their product more valuable to their customers. The production line is narrow in the form of offered products, which are highly standardized when it comes to usage. The main part of the production is made in-house.

SWE-B

SWE-B created value by starting research projects and developing them into the research phases required in the biotech industry, to get products approved on the market. At the time when SWE-B1 started the company, they already had a product, which was placed in phase two of the research. This is where you proceed and start testing the product on a patient, a preclinical study, to test the products effect. SWE-B focused on high customization products in a narrow line, where the product itself was the most important factor of the offering. They licensed the manufacturing of the products and kept a direct distribution.

SWE-C

SWE-C creates value to its customers by making the best products for laboratory testing. Their focus have been to cover the whole field of their research, and they have up until now finished almost 80%. By only focusing on providing their products to laboratories, they do not have to meet the requirements from Läkemedelsverket and FDA, which is the American counterpart. The development is made from their laboratory in Stockholm, Sweden, and then delivered to the whole world. The product line is medium but as mentioned earlier they have covered 80% of the product field were SWE-C is aiming for 100% coverage.

SWE-D

The value proposition for their product was 10 to 100 times more accurate and sensitive then exiting products. However, it is also 50% more expensive. SWE-D offered primarily standardized products in narrow line. SWE-D believed that the product itself is the most important factor in their offering through in-direct distribution through several channels via their internal manufacturing.

SWE-E

SWE-E create value to their customers through their product, which is the only test that uses a special sampling method. This simplifies the collecting process, which up until now has required surveillance and trained staff to be present. SWE-E offers their product to a wide market with a focus of laboratories that distribute the product. SWE-E has an external supplier that manufactures and assembles the most important parts of their product.

5.2.2 Analysis of Component One (factors related to the offering)

All companies were offering products and of these, four of the five companies offered a standardized product. This has according to the authors, to do with the requirements of the high standards on products in the biotech industry. Almost all products need to be CE approved and if sold in the US, FDA approval. Due to high costs, it is not possible to keep customizing the products that are offered to the market. By making a standardized product they can also, which is confirmed in the interviews, keep developing their existing product further.

Only one SME where using several suppliers for the manufacture of their products, which is argued by Shafer, Smith and Linder (2005) to be used when the company is better off to rely on others to do what they cannot do themselves. Four of the SMEs in this study expressed concerns about only relying on one single source for their most important supplies. Even though Shafer, Smith and Linder (2005) argue that the company should outsource what they are not best at doing, the supplies still have to be secured from more than one source. However, SWE-A1 said that they did not "want to lose control off their product" by letting others manufacture and perform the tests. They therefore chose to keep the manufacturing internal and not outsource the production. The company is in this way able to protect the products from for instance patent and copyright infringements.

5.2.3 Findings of Component Two *(market factors)*

SWE-A

The company is based in Uppsala, Sweden, were all the analysis of the product is made. The testing itself can take place anywhere in the world and then send to SWE-A. SWE-A acts in both B-to-B and B-to-C in order to reach a broad customer base. SWE-A has an international market and with its office in Stockholm.

SWE-B

Because SWE-B aimed for selling their projects in different phases, the customers were larger pharmaceutical corporations still acting as a B-to-C SME. After a sale of a project, SWE-B reinvested the money in order to develop new projects, developing them to Phase 2 and then sell them. SWE-B had no ambition to develop a project all the way to the market, but rather to sell it to an international corporation. SWE-B1 argued that it was too costly for a small company like theirs, and they did not have the competence or experience for releasing a product to the niche market.

SWE-C

SWE-C works with B-to-C relationships and keeps tight relation to be able to capture the customer demand. The product is sold to different customers in different parts of the world from their own laboratory located in Stockholm. The market is broad and only a few actors exist, of those 15% stands for 80% of the supply.

SWE-D

SWE-D1 argues that the partners and customers in an international market are somewhat merged and could not really be separated. SWE-D1 argued that this was a disadvantage for SWE-D in order to create value through the product. However, they worked in a B-to-B niched international market.

SWE-E

SWE-E is acting as a B-to-B SME and aim for an international market. SWE-E1 states that approximately 200 000 samples is made each day and that 75% of the tests are performed in the U.S. SWE-E provides their product mainly to the laboratories and First Party Administrators, FPA who performs the tests. Today SWE-E works with relational sales but as they are growing they shifts towards a transactional method of sale.

5.2.4 Analysis of Component Two *(market factors)*

The companies operated in both B-to-C and B-to-B markets, and one of the companies was operating in both. All the SMEs focused on international markets, which is argued by McDougall, Shane and Oviatt (1994) to enable opportunities to earn higher returns, by not only focus on the Swedish market, but rather operate across national borders.

This type of internationalisation from formation would indicate that the Swedish market is too limited for biotech companies to grow. Another reason might be the researchers founding the companies have large networks from previous involvement in research on an international level. This enables the researchers to contact already established connections abroad.

5.2.5 Findings of Component Three (internal capability factors)

SWE-A

SWE-A has a history from the Uppsala University where their product was developed. The product has since then been modified and improved to fit the consumer's demands. SWE-A has competence in sales and marketing, and R&D. Through these two competences they have been able to deliver one of the most sensitive tests on the market.

SWE-B

SWE-B has competence within networking, resource leveraging and R&D.

SWE-C

SWE-C is also a university spin-off and was developed "By researchers for researchers". This has made their product/production and their technology the main source of their core competence. SWE-C1 also states that their network is of high importance.

SWE-D

SWE-D1 points out that a company needs several competencies and capacities depending of which state the company is in. When SWE-D1 entered the company there was a lack of certain competences such as marketing and good contacts to venture capitalists. The researcher who founded the company only focused on how to make the product as sensitive as possible. Hence, the focus and only source of competence was hence their R&D.

SWE-E

SWE-E's source of competence is the R&D, which has led to their new product. Today they have built valuable network that will be useful when the product is released to the market.

5.2.6 Analysis of Component Three (internal capability factors)

All the companies that participated in this research emphasised and focused on their R&D and technology to be their source of competence. This combined with the experience personal increases the chances to success. Four of the companies did not have a clear branding strategy and the SMEs did not focus extensively on marketing. The focus was rather to publish medical and branch organisation journals were the SMEs gained more publicity. All the SMEs in this study argued that the only way of getting "acceptance" in the industry were to publish these articles proving and presenting evidence to their research. According to Mudambi (2002, p.530) "Branding is not important to everyone". Mudambi (2002, p.530) identifies three "clusters of buyers" where the biotech SME consumers are included in the cluster "knowledgeable and interested in the purchase". This means that biotech customers have high knowledge and are engaged in the purchase of the product.

5.2.7 Findings of Component Four (competitive strategy factors)

SWE-A

SWE-A positions them self by providing the most accurate testing tool in the market. SWE-A is working with standardization of the product and to decrease the lead-time between the submission of the sample and the test results. By combining innovating leadership, the products quality and dependability SWE-A hope to become the new standard within their field of expertise.

SWE-B

SWE-B worked with a method to identify new pharmaceutical candidates. The industry was changing and focusing on simplifying and optimizing the systems.

SWE-B differentiated from the other competitors, in that context by keeping the old way using techniques. This enabled them to make more precise experiments and get more information and data from each test. Instead of trying to optimize the method, SWE-B worked on gathering more data and by that finding more patterns, which guided them to better results. SWE-B's competitive strategy was to combine operational efficiency and gain intimate customer relationship.

SWE-C

SWE-C has today one of the markets most acknowledged and preferred products in their segment. They are constantly working on broadening the product line in a close relationship to the customers in order to meet new demands. This is done with experienced staffs that have worked within the field for a long time.

SWE-D

SWE-D positioned them by developing the most accurate and sensitive product in the market. The focus lies in operational excellence and dependability of resources.

SWE-E

SWE-E has developed a new product that does not exist on the market today. They aim to bring this new and superior product on an international level. According to SWE-E1 their product need to be consistent and of the highest quality ensure demand on the market.

5.2.8 Analysis of Component Four (competitive strategy factors)

Consistency and dependability were the two most mentioned factors in the component of competitive strategy. This can also be linked to the quality that all the companies' view as the most important from features, availability and selection. This is related to the products nature. The only two companies that included intimate customer relationship/experiences in their competitive strategy were also the two most successful.

A product used in biotech industry purpose does not often need to be developed and produced over night as argued by all the companies in the survey. The importance lies within the need for the quality of the product and for it to work well.

The authors found that all the companies were actively working with patent protection of their products to secure infringements and prohibit other competitors to enter strategically important markets. SWE-A1, SWE-C1 and SWE-D1 emphasise the importance of having strong and updated patents to prevent product intrusion in this industry. Patent protection is considered by the authors to be a part of the seventh component presented in the frame of reference.

5.2.9 Findings of Component Five *(economic factors)*

SWE-A

SWE-A is still in the start-up phase and is not making any profit. Today SWE-A2 is investigating new ways to expand their production on both domestic and foreign markets. SWE-A uses flexible prices with high margins.

SWE-B

SWE-B transferred projects from the University into their company. These projects helped them value the company in order to attract more investors. From then, SWE-B has managed to survive by raising more venture capital and by selling some of the projects. SWE-B operated with low volumes of sales but with high margins.

SWE-C

SWE-C delivers a premium product and has set a fixed price thereafter. Their product has a very good reputation and therefore they can operate with high margins. Due to the nature of the products, the volumes are medium/low.

SWE-D

Before SWE-D defaulted, they did almost not have any revenues from sales. All the expenses were covered by the owners' capital by issuing new shares. However, the sales of their product were aimed to be at a high volume, with medium margins and with high operating advantage.

SWE-E

SWE-E now makes money from sales, but is still partly dependent on financing. SWE-E1 stated that they planned to expand with a marketing office in the U.S., which required some extra funding. SWE-E is currently evaluating their pricing and revenue model. SWE-E focus on medium volume sales with extensive operating leverage and with medium margins.

5.2.10 Analysis of Component Five *(economic factors)*

SWE-C was the only SME from the companies that were making profit from operational revenues. As stated by SWE-B1, many companies in the biotech industry are built upon borrowed money and cannot rely solely on operational revenue. The cost of producing the product may not be extremely high, but due to long lead-times expenditures tend to be high.

The authors found that the biotech SMEs were operating with medium-to-high margins, however with medium-to-low volumes. This indicates that these kinds of products in the biotech industry have difficulties getting accepted and purchased in high volumes on the general market. This reasoning is based on the branding strategies conducted by the biotech SMEs and their focus on presenting and publishing research findings in order to get

well-known and accepted in the industry. Since the consumers of biotech SMEs, most often are "knowledgeable and interested in the purchase" the authors argue that the strategy of acceptance from the industry and market is required and not yet met by these young companies, except by SWE-C.

5.2.11 Findings of Component Six (personal/investor factors)

SWE-A

SWE-A has a growth business model that aims to deliver a superior product to the market. The scope is to keep developing the product and to deliver a standardized version more accurate than already existing products. SWE-A1 is open a potential sale of the company.

SWE-B

SWE-B used a speculative business model. They had no income revenues, expect from sales of the projects. SWE-B was financed by venture capitalists. The aim was to make the company grow to a point where SWE-B had enough running projects so that a larger corporation could purchase the SME and continue running the business.

SWE-C

SWE-C already had a finished product when leaving the University. This enabled them to adapt an income model from the formation of the venture. Their ambition is to become the market leader in their field.

SWE-D

SWE-D had a speculative business model, but lacked clear ambition and scope.

SWE-E

SWE-E has a growth model. SWE-E1 argued that all the companies in the biotech industry aim for exiting and selling the company when the value has increased. The majority of the SMEs venture capitalists are interested in making profit from their investments and therefor you are often obligated to sale.

5.2.12 Analysis of Component Six (personal/investor factors)

Most of the companies in the biotech industry are speculative businesses that live on borrowed money with future expectations of high return on investments, ROI. Due to the high expenditure these type of SMEs face, many focus on additional revenue beside investor funding and venture capital.

The authors have observed that SMEs with the clearest scope, time horizon and ambition have been the most successful. By communicating a clear scope that illustrates the whole company's vision and mission, SMEs are able to provide a more adapted product, which are in line with the customer demands. In one of the cases, were the scope was unclear and ambiguous, the company failed to meet the customer demand and experienced financial difficulties that lead to defaulting.

The authors argue that the alignment between the researchers, and the investors and management team are of high importance. The researchers often seem be focusing on the product development and forget or do not have the competence or experience to operate the business and capture the markets demand.

5.3 Design of Business Models

As companies grow older they are more likely to develop stronger relationships with other organizations and through those networks and endorsements, they become stronger. Further more, they will have easier access to resources, and severely decrease the risk of defaulting and death. This is an example of the external processes that affect the outcome of new ventures (Singh, Tucker and House, 1986).

There are internal processes that help gaining the liability of newness, despite that it is argued that internal changes can decrease the legitimacy in an organization, most organizational changes do not increase the death rate. This could be through experience of the founders, coordination of new roles and hiring of new employees. However, as the study show, it is suggested that the acquisition of external legitimacy, through for example Universities, significantly decreases the risk of defaulting. This is in line with Singh, Tucker and House (1986) who state that some evidence also show that the lack of external legitimacy not only is a part of the increase in death rates, but that it changes the declining age dependence of death rates to an increasing age dependence.

A common assumption today is that individuals who start their own business are somehow different from those who work in organizations (Singh, Tucker and House, 1986). The authors argue that this is no exception for SMEs in the biotech industry. Founders are often described as active risk-takers, creative managers, innovators, recognize opportunities and acts on these capabilities. They are also dependent on their network to succeed. This could also be reflected towards the liability of newness, which creates difficulties in gathering required support from important resources (Singh, Tucker and House, 1986).

In the biotech start-ups where the founder has been a researcher and often a professor in the field, the work with business has differed hugely from the professors' earlier activities. Singh, Tucker and House (1986) state that the network of the founder is very important to overcome the liability of newness, and if this could not be gained with the help of Universities, founders face problems in extending these networks, which is important to the business.

Further Rasmussen, Mosey and Wright (2011) argue that in order for a university spin-off to be successful, the entrepreneurs need to include external competence since the academic entrepreneurs often lack industrial experience and external champions. This was also confirmed in the interviewed held with SWE-C1, SWE-A1, SWE-D1 and SWE-B1 who all stated that in order to secure a sustainable future after leaving the University, external leadership and expertise where brought in.

The combination of several business models in SMEs, that were stated to be present by Morris, Schindehutte and Allen (2005), has not been found in this study of SMEs in the biotech industry. Instead, the authors found evidence for the case of Willemstein, van der Valk and Meeus (2007) in which the biotech SMEs shifted their business models after leaving the University and the venture was created. The authors agree with Willemstein, van der Valk and Meeus (2007) and conclude that biotech enterprises experience an increasing change of business models that are argued to appear after the founding of the venture.

6 Conclusion

This section will present answers to the research questions and conclusions will be drawn.

The interest in business models have increased during the recent decade and by examining the biotech industry focusing on business model design and its components, the authors have made several remarks.

The authors discovered that all the studied companies were so-called University spin-offs. Projects were started by a researcher/s, still working within the University, from where the idea was captured and brought to a new venture. When analysing the findings of this study, the authors found that the SMEs in the biotech industry who developed their idea within the University until they could offer an almost finished product seemed to be most successful. The authors also found that the researchers extracting their ideas and leaving the University too early experienced both liability of smallness and newness. Instead of being able to rely on the reputation and especially existing resources from the University, the companies had to focus even more on getting validation and endorsements through publications from their study. This is both time-consuming and costly. Another problem that these SMEs faced when leaving the University was the inexperience of operating a business and to compete with external actors. The authors argue that it is important that founders involve external competences with industrial experience.

RQ1: What are the patterns of used components in business models for SMEs operating in the biotech industry?

The first research question indicates that the studied SMEs are similar regarding its use of business model components. The authors found that SMEs in the biotech industry, who involved customers at an early stage, seemed to be the most successful. This research shows that all SMEs in the biotech industry have a product offering, were four out of five SMEs have a standardized product without customization. Four out of five SMEs used internal manufacturing and delivered a complete product. One of the SMEs had outsourced parts of their manufacturing. Another pattern that were found was that the SMEs offered products at high/medium margins at a low/medium sales volume. Finally, the authors found that all SMEs operated on an international market.

RQ2: What are the main motives for choosing particular components in business model/s by SMEs operating in the biotech industry?

By keeping the customer focus and understanding the market demand, the SMEs were able to prioritise features in the product or service development to satisfy the consumers. The SME's that were founded and ran by a researcher, whom had extracted an idea at an early stage, seemed to lose the involvement of the customer and lacked required industry expertise. This resulted in product development that was not in line with the markets demand. The SMEs only focused on developing features of the product that the researcher found

important, while the market demand rather was something else. The authors found that SMEs in the biotech industry were more successful if the R&D department and the management team were aligned to meet the customer demand. Four out of five companies chose to keep their manufacturing internal. This is according to the authors because the companies wanted to protect their IPR and were worried for example patent infringements. Finally the authors argue that the reason why all SMEs in the biotech industry expanded to an international market at formation was that the Swedish market was too small for the SMEs in the biotech industry to operate in.

7 Discussion

7.1 Contributions

This study was conducted with five Swedish SMEs operating in the biotech industry, acting on an international market. Even though this thesis only covers a small sample of the industry, the authors argue that the findings can benefit the SMEs operating in the biotech industry. This can be achieved through analytic generalization.

Polit and Tateno Beck (2010) reason that generalization is drawing conclusions about the unobserved from the observed. Furthermore, the goal of qualitative studies is not mainly to generalize the findings but rather give a deep understanding through intensive studies (Yin, 2012; Polit and Tateno Beck, 2010). Analytic generalization aims in difference to statistical generalization to generalize a specific result to a broader theory. This does not imply that the findings support an entire theory definitively, but rather present evidence (Yin, 2012).

Yin (2011; 2012) states that even though a case study is not likely to achieve the status of "proof" (2011, p.101), a qualitative study can provide analytic generalization to establish a logic that might be applicable to other situations.

This thesis presents a foundation and overview of what have been researched so far and factors that are important when designing and dealing with business models of biotech SMEs. This research contributes by showing that there are primarily general competence and capability gaps, which can be avoided by including business competence in the start-up of biotech SMEs in order to focus on the customer demands rather than entirely on the product development and not leaving the University at a too early stage.

7.2 Suggestions for Further Studies

This study made the authors discovered that factors contributing to the growth and sustainability of biotech SMEs originate from how they separate from University. However, due to the time frame, the authors chose not to include theories regarding university spin-off in the thesis. There are today several studies regarding University spin-off, among them Rasmussen, Mosey and Wright (2011), Walter, Auer and Ritter (2006), and Willemstein, van der Valk and Meeus (2007), but few are focused on biotech SMEs. For this purpose, it would be of interest to study when biotech SMEs should separate from University in order to minimize and possibly eliminate the liability of smallness and newness.

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Appendix I (SWE-A)

Initial Report

Last Modified: 05/06/2013

1. Which kind of products or services do you offer?

#	Answer	Bar	Response	%
1	Primarily products		1	100%
2	Primarily service		0	0%
3	Heavy mix		0	0%
	Total		1	

2. Are your product or service standardized or customized?

#	Answer	Bar	Response	%
1	Standardized		1	100%
2	Some customization		0	0%
3	High customization		0	0%
	Total		1	

3. How does your offering look like?

#	Answer	Bar	Response	%
1	Broad line		0	0%
2	Medium breadth		0	0%
3	Narrow line		1	100%
	Total		1	

4. What is important in your offering?

#	Answer	Bar	Response	%
1	Access to product		0	0%
2	Product itself		1	100%
3	Product bundle with other firms products		0	0%
	Total		1	

5. What is your product depth?

#	Answer	Bar	Response	%
1	Deep line		0	0%
2	Medium depth		1	100%
3	Shallow line		0	0%
	Total		1	

6. What is your role in the offering?

#	Answer	Bar	Response	%
1	Internal manufacturing or service delivery		1	100%
2	Outsourcing		0	0%
3	Licensing		0	0%
4	Reselling		0	0%
5	Value added reselling		0	0%
	Total		1	

7. How do you offer your products?

#	Answer	Bar	Response	%
1	Direct distribution		0	0%
2	Indirect distribution		1	100%
	Total		1	

8. How does the indirect distribution look like?

#	Answer	Bar	Response	%
1	Single		0	0%
2	Multichannel		1	100%
	Total		1	

9. What is your type of business?

#	Answer	Bar	Response	%
1	Business to Business		0	0%
2	Business to Customer		0	0%
3	Both		1	100%
	Total		1	

10. Where does your organization operate?

#	Answer	Bar	Response	%
1	Locally		0	0%
2	Regionally		0	0%
3	Internationally		1	100%
	Total		1	

11. Where are the customers in your value chain?

#	Answer	Bar	Response	%
1	Upstream supplier		0	0%
2	Downstream supplier		0	0%
3	Government		0	0%
4	Wholesaler		0	0%
5	Retailer		1	100%
6	Service provider		0	0%
7	Final consumer		0	0%
	Total		1	

12. How does the market look like?

#	Answer	Bar	Response	%
1	Broad or general market		0	0%
2	Multiple segment		1	100%
3	Niche market		0	0%
	Total		1	

13. How would you best describe your sales?

#	Answer	Bar	Response	%
1	Transactional		0	0%
2	Relational		1	100%
	Total		1	

14. What is your source of competence?

#	Answer	Bar	Response	%
1	Production / Operating systems		0	0%
2	Selling / Marketing		1	100%
3	Information management / Mining / Packaging		0	0%
4	Technology / R&D / Creative or innovative capability / Intellectual		1	100%
7	Networking / Resource leveraging		0	0%
8	Financial transaction / Arbitrage		0	0%

15. What are your competitive strategy factor regarding your company?

#	Answer	Bar	Response	%
1	Image of operational excellence / Consistency / Dependability / Speed		1	100%
2	Product or service quality / Selection / Features / Availability		1	100%
3	Innovation leadership		1	100%
4	Low cost / Efficiency		0	0%
5	Initiate customer relationship / Experience		0	0%

16. What is your pricing and revenue source?

#	Answer	Bar	Response	%
1	Fixed		0	0%
2	Mixed		0	0%
3	Flexible		1	100%
	Total		1	

17. What is your operating level?

#	Answer	Bar	Response	%
1	High		1	100%
2	Medium		0	0%
3	Low		0	0%
	Total		1	

18. What is you sales volume?

#	Answer	Bar	Response	%
1	High		1	100%
2	Medium		0	0%
3	Low		0	0%
	Total		1	

19. What is your margins?

#	Answer	Bar	Response	%
1	High		1	100%
2	Medium		0	0%
3	Low		0	0%
	Total		1	

20. What are our time, scope and size ambitions?

#	Answer	Bar	Response	%
1	Subsistence model		0	0%
2	Income model		0	0%
3	Growth model		1	100%
4	Speculative model		0	0%
	Total		1	

Appendix II (SWE-B)

Initial Report

Last Modified: 05/06/2013

1. Which kind of products or services do you offer?

#	Answer	Bar	Response	%
1	Primarily products		1	100%
2	Primarily service		0	0%
3	Heavy mix		0	0%
	Total		1	

2. Are your product or service standardized or customized?

#	Answer	Bar	Response	%
1	Standardized		0	0%
2	Some customization		0	0%
3	High customization		1	100%
	Total		1	

3. How does your offering look like?

#	Answer	Bar	Response	%
1	Broad line		0	0%
2	Medium breadth		0	0%
3	Narrow line		1	100%
	Total		1	

4. What is important in your offering?

#	Answer	Bar	Response	%
1	Access to product		0	0%
2	Product itself		1	100%
3	Product bundle with other firms products		0	0%
	Total		1	

5. What is your product depth?

#	Answer	Bar	Response	%
1	Deep line		0	0%
2	Medium depth		1	100%
3	Shallow line		0	0%
	Total		1	

6. What is your role in the offering?

#	Answer	Bar	Response	%
1	Internal manufacturing or service delivery		0	0%
2	Outsourcing		0	0%
3	Licensing		1	100%
4	Reselling		0	0%
5	Value added reselling		0	0%
	Total		1	

7. How do you offer your products?

#	Answer	Bar	Response	%
1	Direct distribution		1	100%
2	Indirect distribution		0	0%
	Total		1	

8. How does the indirect distribution look like?

This question was not displayed to the respondent.

9. What is your type of business?

#	Answer	Bar	Response	%
1	Business to Business		0	0%
2	Business to Customer		1	100%
3	Both		0	0%
	Total		1	

10. Where does your organization operate?

#	Answer	Bar	Response	%
1	Locally		0	0%
2	Regionally		0	0%
3	Internationally		1	100%
	Total		1	

11. Where are the customers in your value chain?

#	Answer	Bar	Response	%
1	Upstream supplier		1	100%
2	Downstream supplier		0	0%
3	Government		0	0%
4	Wholesaler		0	0%
5	Retailer		0	0%
6	Service provider		0	0%
7	Final consumer		0	0%
	Total		1	

12. How does the market look like?

#	Answer	Bar	Response	%
1	Broad or general market		0	0%
2	Multiple segment		0	0%
3	Niche market		1	100%
	Total		1	

13. How would you best describe your sales?

#	Answer	Bar	Response	%
1	Transactional		0	0%
2	Relational		1	100%

	Total		1	

14. What is your source of competence?

#	Answer	Bar	Response	%
1	Production / Operating systems		0	0%
2	Selling / Marketing		0	0%
3	Information management / Mining / Packaging		0	0%
4	Technology / R&D / Creative or innovative capability / Intellectual		1	100%
7	Networking / Resource leveraging		1	100%
8	Financial transaction / Arbitrage		0	0%

15. What are your competitive strategy factor regarding your company?

#	Answer	Bar	Response	%
1	Image of operational excellence / Consistency / Dependability / Speed		1	100%
2	Product or service quality / Selection / Features / Availability		0	0%
3	Innovation leadership		0	0%
4	Low cost / Efficiency		1	100%
5	Initiate customer relationship / Experience		1	100%

16. What is your pricing and revenue source?

#	Answer	Bar	Response	%
1	Fixed		0	0%
2	Mixed		1	100%
3	Flexible		0	0%
	Total		1	

17. What is your operating level?

#	Answer	Bar	Response	%
1	High		1	100%
2	Medium		0	0%
3	Low		0	0%
	Total		1	

18. What is you sales volume?

#	Answer	Bar	Response	%
1	High		0	0%
2	Medium		0	0%
3	Low		1	100%
	Total		1	

19. What is your margins?

#	Answer	Bar	Response	%
1	High		1	100%
2	Medium		0	0%
3	Low		0	0%
	Total		1	

20. What are our time, scope and size ambitions?

#	Answer	Bar	Response	%
1	Subsistence model		0	0%
2	Income model		0	0%
3	Growth model		0	0%
4	Speculative model		1	100%
	Total		1	

Appendix III (SWE-C)

Initial Report

Last Modified: 05/06/2013

1. Which kind of products or services do you offer?

#	Answer	Bar	Response	%
1	Primarily products		1	100%
2	Primarily service		0	0%
3	Heavy mix		0	0%
	Total		1	

2. Are your product or service standardized or customized?

#	Answer	Bar	Response	%
1	Standardized		1	100%
2	Some customization		0	0%
3	High customization		0	0%
	Total		1	

3. How does your offering look like?

#	Answer	Bar	Response	%
1	Broad line		0	0%
2	Medium breadth		1	100%
3	Narrow line		0	0%
	Total		1	

4. What is important in your offering?

#	Answer	Bar	Response	%
1	Access to product		0	0%
2	Product itself		1	100%
3	Product bundle with other firms products		0	0%
	Total		1	

5. What is your product depth?

#	Answer	Bar	Response	%
1	Deep line		0	0%
2	Medium depth		0	0%
3	Shallow line		1	100%
	Total		1	

6. What is your role in the offering?

#	Answer	Bar	Response	%
1	Internal manufactoring or service delivery		1	100%
2	Outsourcing		0	0%
3	Licensing		0	0%
4	Reselling		0	0%
5	Value added reselling		0	0%
	Total		1	

7. How do you offer your products?

#	Answer	Bar	Response	%
1	Direct distribution		1	100%
2	Indirect distribution		0	0%
	Total		1	

8. How does the indirect distribution look like?

This question was not displayed to the respondent.

9. What is your type of business?

#	Answer	Bar	Response	%
1	Business to Business		0	0%
2	Business to Customer		1	100%
3	Both		0	0%
	Total		1	

10. Where does your organization operate?

#	Answer	Bar	Response	%
1	Locally		0	0%
2	Regionally		0	0%
3	Internationally		1	100%
	Total		1	

11. Where are the customers in your value chain?

#	Answer	Bar	Response	%
1	Upstream supplier		0	0%
2	Downstream supplier		0	0%
3	Government		0	0%
4	Wholesaler		0	0%
5	Retailer		0	0%
6	Service provider		0	0%
7	Final consumer		1	100%
	Total		1	

12. How does the market look like?

#	Answer	Bar	Response	%
1	Broad or general market		1	100%
2	Multiple segment		0	0%
3	Niche market		0	0%
	Total		1	

13. How would you best describe your sales?

#	Answer	Bar	Response	%
1	Transactional		0	0%
2	Relational		1	100%

	Total		1	

14. What is your source of competence?

#	Answer	Bar	Response	%
1	Production / Operating systems		1	100%
2	Selling / Marketing		1	100%
3	Information management / Mining / Packaging		0	0%
4	Technology / R&D / Creative or innovative capability / Intellectual		1	100%
7	Networking / Resource leveraging		1	100%
8	Financial transaction / Arbitrage		0	0%

15. What are your competitive strategy factor regarding your company?

#	Answer	Bar	Response	%
1	Image of operational excellence / Consistency / Dependability / Speed		1	100%
2	Product or service quality / Selection / Features / Availability		1	100%
3	Innovation leadership		0	0%
4	Low cost / Efficiency		0	0%
5	Initiate customer relationship / Experience		1	100%

16. What is your pricing and revenue source?

#	Answer	Bar	Response	%
1	Fixed		1	100%
2	Mixed		0	0%
3	Flexible		0	0%
	Total		1	

17. What is your operating level?

#	Answer	Bar	Response	%
1	High		0	0%
2	Medium		1	100%
3	Low		0	0%
	Total		1	

18. What is you sales volume?

#	Answer	Bar	Response	%
1	High		0	0%
2	Medium		0	0%
3	Low		1	100%
	Total		1	

19. What is your margins?

#	Answer	Bar	Response	%
1	High		1	100%
2	Medium		0	0%
3	Low		0	0%
	Total		1	

20. What are our time, scope and size ambitions?

#	Answer	Bar	Response	%
1	Subsistence model		0	0%
2	Income model		1	100%
3	Growth model		0	0%
4	Speculative model		0	0%
	Total		1	

Appendix IV (SWE-D)

Initial Report

Last Modified: 05/06/2013

1. Which kind of products or services do you offer?

#	Answer	Bar	Response	%
1	Primarily products		1	100%
2	Primarily service		0	0%
3	Heavy mix		0	0%
	Total		1	

2. Are your product or service standardized or customized?

#	Answer	Bar	Response	%
1	Standardized		1	100%
2	Some customization		0	0%
3	High customization		0	0%
	Total		1	

3. How does your offering look like?

#	Answer	Bar	Response	%
1	Broad line		0	0%
2	Medium breadth		0	0%
3	Narrow line		1	100%
	Total		1	

4. What is important in your offering?

#	Answer	Bar	Response	%
1	Access to product		0	0%
2	Product itself		1	100%
3	Product bundle with other firms products		0	0%
	Total		1	

5. What is your product depth?

#	Answer	Bar	Response	%
1	Deep line		0	0%
2	Medium depth		0	0%
3	Shallow line		1	100%
	Total		1	

6. What is your role in the offering?

#	Answer	Bar	Response	%
1	Internal manufacturing or service delivery		1	100%
2	Outsourcing		0	0%
3	Licensing		0	0%
4	Reselling		0	0%
5	Value added reselling		0	0%
	Total		1	

7. How do you offer your products?

#	Answer	Bar	Response	%
1	Direct distribution		0	0%
2	Indirect distribution		1	100%
	Total		1	

8. How does the indirect distribution look like?

#	Answer	Bar	Response	%
1	Single		0	0%
2	Multichannel		1	100%
	Total		1	

9. What is your type of business?

#	Answer	Bar	Response	%
1	Business to Business		1	100%
2	Business to Customer		0	0%
3	Both		0	0%
	Total		1	

10. Where does your organization operate?

#	Answer	Bar	Response	%
1	Locally		0	0%
2	Regionally		0	0%
3	Internationally		1	100%
	Total		1	

11. Where are the customers in your value chain?

#	Answer	Bar	Response	%
1	Upstream supplier		0	0%
2	Downstream supplier		0	0%
3	Government		0	0%
4	Wholesaler		1	100%
5	Retailer		0	0%
6	Service provider		0	0%
7	Final consumer		0	0%
	Total		1	

12. How does the market look like?

#	Answer	Bar	Response	%
1	Broad or general market		0	0%
2	Multiple segment		0	0%
3	Niche market		1	100%
	Total		1	

13. How would you best describe your sales?

#	Answer	Bar	Response	%
1	Transactional		0	0%
2	Relational		1	100%
	Total		1	

14. What is your source of competence?

#	Answer	Bar	Response	%
1	Production / Operating systems		0	0%
2	Selling / Marketing		0	0%
3	Information management / Mining / Packaging		0	0%
4	Technology / R&D / Creative or innovative capability / Intellectual		1	100%
7	Networking / Resource leveraging		0	0%
8	Financial transaction / Arbitrage		0	0%

15. What are your competitive strategy factor regarding your company?

#	Answer	Bar	Response	%
1	Image of operational excellence / Consistency / Dependability / Speed		1	100%
2	Product or service quality / Selection / Features / Availability		0	0%
3	Innovation leadership		0	0%
4	Low cost / Efficiency		0	0%
5	Initiate customer relationship / Experience		0	0%

16. What is your pricing and revenue source?

#	Answer	Bar	Response	%
1	Fixed		0	0%
2	Mixed		0	0%
3	Flexible		1	100%
	Total		1	

17. What is your operating level?

#	Answer	Bar	Response	%
1	High		0	0%
2	Medium		0	0%
3	Low		1	100%
	Total		1	

18. What is you sales volume?

#	Answer	Bar	Response	%
1	High		0	0%
2	Medium		0	0%
3	Low		1	100%
	Total		1	

19. What is your margins?

#	Answer	Bar	Response	%
1	High		0	0%
2	Medium		1	100%
3	Low		0	0%
	Total		1	

20. What are our time, scope and size ambitions?

#	Answer	Bar	Response	%
1	Subsistence model		0	0%
2	Income model		0	0%
3	Growth model		0	0%
4	Speculative model		1	100%
	Total		1	

Appendix V (SWE-E)

Initial Report

Last Modified: 05/06/2013

1. Which kind of products or services do you offer?

#	Answer	Bar	Response	%
1	Primarily products		1	100%
2	Primarily service		0	0%
3	Heavy mix		0	0%
	Total		1	

2. Are your product or service standardized or customized?

#	Answer	Bar	Response	%
1	Standardized		1	100%
2	Some customization		0	0%
3	High customization		0	0%
	Total		1	

3. How does your offering look like?

#	Answer	Bar	Response	%
1	Broad line		0	0%
2	Medium breadth		0	0%
3	Narrow line		1	100%
	Total		1	

4. What is important in your offering?

#	Answer	Bar	Response	%
1	Access to product		0	0%
2	Product itself		0	0%
3	Product bundle with other firms products		1	100%
	Total		1	

5. What is your product depth?

#	Answer	Bar	Response	%
1	Deep line		0	0%
2	Medium depth		1	100%
3	Shallow line		0	0%
	Total		1	

6. What is your role in the offering?

#	Answer	Bar	Response	%
1	Internal manufacturing or service delivery		1	100%
2	Outsourcing		0	0%
3	Licensing		0	0%
4	Reselling		0	0%
5	Value added reselling		0	0%
	Total		1	

7. How do you offer your products?

#	Answer	Bar	Response	%
1	Direct distribution		1	100%
2	Indirect distribution		0	0%
	Total		1	

8. How does the indirect distribution look like?

This question was not displayed to the respondent.

9. What is your type of business?

#	Answer	Bar	Response	%
1	Business to Business		1	100%
2	Business to Customer		0	0%
3	Both		0	0%
	Total		1	

10. Where does your organization operate?

#	Answer	Bar	Response	%
1	Locally		0	0%
2	Regionally		0	0%
3	Internationally		1	100%
	Total		1	

11. Where are the customers in your value chain?

#	Answer	Bar	Response	%
1	Upstream supplier		0	0%
2	Downstream supplier		0	0%
3	Government		0	0%
4	Wholesaler		0	0%
5	Retailer		0	0%
6	Service provider		1	100%
7	Final consumer		0	0%
	Total		1	

12. How does the market look like?

#	Answer	Bar	Response	%
1	Broad or general market		0	0%
2	Multiple segment		1	100%
3	Niche market		0	0%
	Total		1	

13. How would you best describe your sales?

#	Answer	Bar	Response	%
1	Transactional		1	100%
2	Relational		0	0%

	Total		1	

14. What is your source of competence?

#	Answer	Bar	Response	%
1	Production / Operating systems		0	0%
2	Selling / Marketing		1	100%
3	Information management / Mining / Packaging		0	0%
4	Technology / R&D / Creative or innovative capability / Intellectual		1	100%
7	Networking / Resource leveraging		1	100%
8	Financial transaction / Arbitrage		0	0%

15. What are your competitive strategy factor regarding your company?

#	Answer	Bar	Response	%
1	Image of operational excellence / Consistency / Dependability / Speed		1	100%
2	Product or service quality / Selection / Features / Availability		1	100%
3	Innovation leadership		0	0%
4	Low cost / Efficiency		0	0%
5	Initiate customer relationship / Experience		0	0%

16. What is your pricing and revenue source?

#	Answer	Bar	Response	%
1	Fixed		0	0%
2	Mixed		0	0%
3	Flexible		1	100%
	Total		1	

17. What is your operating level?

#	Answer	Bar	Response	%
1	High		0	0%
2	Medium		0	0%
3	Low		1	100%
	Total		1	

18. What is you sales volume?

#	Answer	Bar	Response	%
1	High		0	0%
2	Medium		1	100%
3	Low		0	0%
	Total		1	

19. What is your margins?

#	Answer	Bar	Response	%
1	High		0	0%
2	Medium		1	100%
3	Low		0	0%
	Total		1	

20. What are our time, scope and size ambitions?

#	Answer	Bar	Response	%
1	Subsistence model		0	0%
2	Income model		0	0%
3	Growth model		1	100%
4	Speculative model		0	0%
	Total		1	