



Accelerating Growth

Determinants of revenue growth
in technology startups



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Abstract

Title

Accelerating Growth – Determinants of revenue growth in technology startups

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Background

In today's competitive market landscape, companies in an early phase with a business model that in the long term is expected to generate revenues from a global customer base, are facing increasing challenges to realise their growth targets. At the same time, global economical, technological, and societal megatrends forces incumbents and new challengers alike to adapt their modus operandi.

Purpose

The purpose of this thesis is to identify, analyse and describe the determinants for growth in technology startups, in terms of their strategy, resources & capabilities, and value proposition.

Methodology

The project had an abductive and qualitative approach with an explanatory purpose. The research strategy consisted of case studies of three Swedish companies.

Delimitations

This thesis focuses solely on organic revenue growth, leaving topics such as profitability and acquisitions aside. The case studies focus on Swedish technology firms, with a B2B business model. Furthermore, this thesis does not discuss implementational aspects of the conclusions.

Conclusion

Relying on the analysis of the case studies in conjunction with established academic research, three areas of importance were identified. Firstly, a guiding coalition that provides strategic direction is needed, at least in an advisory role, to guide the startup in the competitive landscape. Secondly, technology startups should put great emphasis on finding and retaining the right people in order to complement the capabilities of the entrepreneur and mitigate risks. Lastly, the startup must ensure that the product-market fit is adequate by researching the target market, construct a segmentation logic, and develop and configure a product or service that satisfies the segments' preferences.

Keywords

Capabilities, technology, monetisation, market entry, resources, revenue growth, SCA, startups, strategy, value proposition, WTP

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Furthermore, the research in this thesis relies on interviews conducted with business professionals throughout the course of this project. These have been essential for the analysis, and the conclusions drawn from them. Mr. Anders Jacobson of Nordiska Entreprenadsystem, Mr. Joakim Botha of Eliq and Mr. Christer Fåhraeus of CellaVision, are fully investing their precious time in their respective ventures but managed nonetheless to allocate time to answer questions regarding their startup journeys; thank you for your time, and good luck going forward.

Tor Berglund
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List of Abbreviations

AI	Artificial intelligence
AMP	Alternative metric pricing
ANN	Artificial neural network
B2B	Business-to-business
B2C	Business-to-consumer
CAGR	Compound annual growth rate
CEO	Chief executive officer
CMC	Construction-, maintenance- and contracting
CTO	Chief technology officer
EOY	End-of-year
EBITDA	Earnings before interest, taxes, depreciation, and amortisation
IMI	Intelligent Medical Imaging Inc.
IoT	Internet of things
IP	Intellectual property
M&A	Mergers & acquisitions
mteo	Million tonnes of oil equivalents
NEAB	Nordiska Entreprenadsystem
PLC	Product life-cycle
R&D	Research & development
RBV	Resource-based view
ROI	Return on investment
SaaS	Software-as-a-service
SCA	Sustainable competitive advantage
SME	Small and medium-sized enterprises
WTP	Willingness-to-pay
YoY	Year-over-year

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1 Introduction

1.1 Background and problem description

1.1.1 Shifts of powers and megatrends affect the business arena

In today's competitive market landscape, companies in an early phase with a business model that in the long term is expected to generate revenues from a global customer base, are facing increasing challenges to realise their growth targets (Mia and Clarke, 1999). Scaling up from a limited network of customers and suppliers in order to serve a global market is difficult, and even more so if the objective is to scale profitably, which ultimately all companies strive for (as opposed to non-profit organisations). In Sweden, 99.9 % of the combined 1.2 million companies are *small and medium-sized enterprises* (SME), defined as companies with less than 250 employees. 69% of the SMEs are concerned with how to grow their business. Not only do these companies emphasise the complexity of growth, they also display an urgency of why there is a need to address the issue. Together, they account for 60% of all revenue and value creation in Sweden and employ 65% of the workforce. Consequently, 1% of enterprises account for 40% and 35% respectively of the remaining balance. Indisputably, the effect of enterprises transiting from the SME category to the large enterprise category would be enormous and a powerful amplifier of welfare creation (Tillväxtverket, 2018).

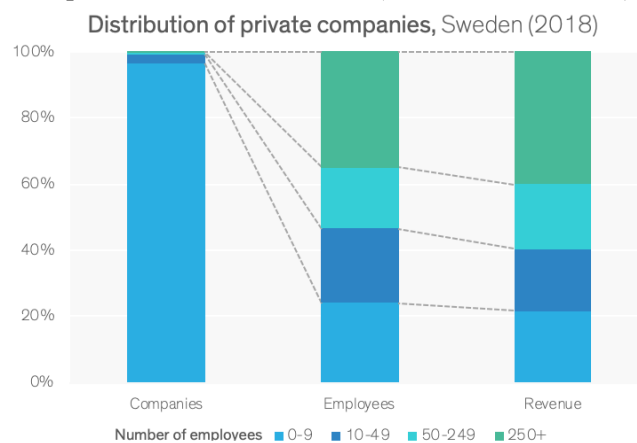


Figure 1.1 Distribution of private companies, Sweden (2018) (Tillväxtverket, 2018)

Today, both categories of companies are part of knowledge-intensive industries to a larger extent than has ever been the case before. The world in which people paid their bills by working long hours at the assembly line will soon be a legacy of the past as new technologies introduced over the last decades erase the need of manual labour to perform repetitive work. Accordingly, companies play by different rules now compared to before, where the abundance of information,

data and communication possibilities is transforming the local market into a global (Castells, 2010).

In this increasingly global market, new economic superpowers have begun to challenge current economic structures (Freeman, 2018). The axiomatic belief of the United States acting as the world's economic and military stronghold is now being questioned as China aspires to take over the throne - an advent that may materialise sooner than first believed. Already in 2014, China became the largest economy in the world in terms of purchasing power. Building on this trend, a report from the British bank HSBC published in September 2018 projected China to take over the U.S as the world biggest economy by 2030 and India to pass Japan to become the world's third-largest economy (Henry, 2018). Furthermore, new demographic shifts, population growth and urbanisation will alter consumer behaviour, increase the collective purchasing power and bring more people into cities (Bughin, Manyika & Woetzel, 2016). The U.N. forecasts that by 2050, 68% of the world's population will be living in urban areas, compared to 55% in 2018 (UN DESA, 2018). As the inevitable power shifts take place, the overtaken economies are likely to do what they can to curb the development. Most recently, the U.S has acted by introducing trade barriers and negotiate tougher deals with China to prevent theft of American technology and intellectual property (Pugatch, Torstensson & Chu, 2018).

Combined, these trends will have major implications for startups in the technology arena. To begin with, it will create an even more rivalrous business environment as the demand and competition for venture capital and talent is likely to increase. Second, the need for robust cyber-security systems will accelerate, as the abundance of sensitive information and dependency on IT has made it a lucrative business to commit cyber-attacks (Chesley, Everson & Garvey, 2016). Cyber-attacks are already a reality used to steal intellectual property and blackmail companies. Container shipping company A.P. Moller - Maersk witnessed the effects of this trend at the very front row when they in 2016 were subject to an attack that wiped out IT-systems across the entire company (A.P. Møller - Mærsk A/S, 2016). The cost of the shutdown was estimated to \$250-300 million, underlining the need for businesses to proactively examine risk appetite and align infrastructure to address the technical and business challenges involved (Chesley, Everson & Garvey, 2016). Third and finally, companies must look for new geographical areas to pursue business opportunities. Customers today might not be recognisable 5-10 years from now under the influence of trends in demography and urbanisation (Bughin, Manyika & Woetzel, 2016).

1.1.2 A new connected age - affecting businesses and consumers alike

There have been several major shifts regarding consumers' relationships with technology, connected devices, and the Internet. Connected devices are today a natural and integral part of people's daily lives (Larik, et al., 2016). Perhaps the best example of this is the adoption rate of smartphones, which in the U.S has risen from 35% in 2011, to 77% in 2016 (Pew Research Center, 2018). Smartphones, being a highly capable connected personal computational device, act as the primary daily interface for interactions between humans and computer systems (Davidsson & Thoresson, 2017). This trend has enabled businesses and organisations around the globe to communicate with consumers and subsequently capitalise on the interactions, for the benefit of both consumers and businesses. Consumers enjoy a higher level of information access which reduces transaction and switch costs, and businesses are able to gain valuable insights in customer behaviour and preferences (Brown *et al.*, 2017).

The communication between the connected devices is expected by consumers to transpire seamlessly, with minimum action required. As more devices with this requirement enter the cyberspace in an *Internet of Things* (IoT), new standards and technologies are needed in order to provide the required infrastructure. The upcoming 5G networks that are developed in order to replace and complement today's 4G standard are designed to fulfil all requirements in number of nodes, security, and new standards rendered from IoT (Li, Da Xu & Zhao, 2018).

This trend has other, less positive, ramifications. When incorporating an always-on, always-connected device into the daily life, the question of personal integrity becomes ever more important. Firstly, family-members, friends, and co-workers, but also computer programs can now contact you anytime at their discretion. Secondly, the data collected by computer products and services can potentially be used in applications that are not aligned with the consumer's ethics and beliefs. The most recent example of this trend is Cambridge Analytica's use of millions of Facebook users' data with the aim to steer public opinion in the 2016 US presidential election. When probed about the question of data collection and privacy, nine out of ten American adults feel that various dimensions of control over personal information collection are "very important" to them (Pew Research Center, 2015). However, there are little data to support this view when investigating consumer behaviour and product/service preferences (USC Annenberg, 2013). The way in which corporations collect and use personal data is likely to continue to spur debate and lawsuits in the future ahead. In addition, the data transferred between connected devices is furthermore slowly becoming a commodity, providing value for companies by sheer quantity. With a higher number of connected devices, responsible for

more tasks in our daily lives, more data will be produced; some estimate that a self-driving car will generate 100 gigabytes per second. The amount of data created and copied every year is expected to reach 180 zettabytes in 2025 (up from 45 in 2020) (Economist, 2017).

Data has never been confined within national and cultural borders, and consumer shopping of goods and services is also slowly acquiring that characteristic. Cross-border e-commerce is expected to reach \$1 trillion in 2020, divided over a billion shoppers worldwide. When probed for the reasons for the proclivity to purchase goods and services from abroad, US consumers indicate cheaper prices and ability to obtain brands or products that are not available in the US as their main reasons. However, high shipping costs and long delivery times remain significant hurdles for the growth and expansion of cross-border shopping (Saleh, K.).

The shift in consumer behaviour, together with new technological possibilities and access to an abundance of information render a plethora of new ways for startups and other organisations to grow - whereas other strategies has proven obsolete (Watson *et al.*, 2014). One of the most striking examples of how technology disrupts seemingly impenetrable market structures is the demise of Nokia's cell phone business post 2007. Nokia captured 50% of all profits in the mobile phone industry at the time. After a series of inadequate decisions, based on a gross overestimation of brand loyalty and a complacency in their current product strategies, Nokia's mobile division was sold to Microsoft in 2014 for a fraction of its peak value (Ovide, 2013). 12,500 Nokia employees were laid off (Tu, 2014), and Microsoft immediately discontinued Nokia's feature phones (Warren, 2014). The Nokia brand was subsequently licenced to HMD Global, which released the Nokia 150, with a listing price of \$26 (Davenport, 2017). The latest iPhone by Apple, a company that was regarded as irrelevant by incumbent executives during the early 21th century, have a listing price of \$999. It is one of the most popular cell phones in the world (Miller, 2018).

The implications of all economical, technological, and societal megatrends combined lead to the conclusion that businesses are facing new environments on multiple levels. In order to properly respond to this new environment, there should be an emphasis among all industries to adapt *modus operandi*. What this means is exploring new growth strategies to both survive, thrive, and build know-how to create a competitive advantage over time. This poses a great challenge for businesses in the startup phase, as they do not yet possess any prior knowledge of viable strategic options derived from earlier experiences in the marketplace.

1.2 Purpose

The purpose of this thesis is to identify, describe and analyse the determinants of revenue growth in technology startups, in terms of their strategy, resources & capabilities, and value proposition.

1.3 Delimitations

This thesis will be based on the empirical findings from three interviewed entrepreneurs representing three different technology startups, as well as relevant literature references. The study will be carried out during a 20-week period. Technology startups, as stated in the purpose, will be the sole focus of this study, which does not include companies with any other orientation. Moreover, only Swedish companies with a B2B business model will be investigated.

In addition, growth options are limited and exclusive to those derived from organic resources and capabilities. Hence, this study will not include strategies and examples of companies which achieved their success through M&A, while strategic partnerships and alliances are not subject to any delimitation. However, the study of acquisitions with the explicit goal of acquiring resources & capabilities are still in scope. Finally, organisational capabilities refer to the competencies and prior knowledge derived from the individuals involved in the organisation i.e. the entrepreneurs, as well as potential access to technology and processes.

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2 Methodology

2.1 Research Purpose

The purpose of any research can be categorised into four different areas; exploratory, descriptive, explanatory, or problem solving (Höst, Regnell & Runeson, 2006). An exploratory study is useful when addressing issues such as “what is happening; to seek new insights; to ask questions and to assess phenomena in a new light” (Robson, 2011). It’s particularly valuable when investigating problems that are less defined with an unclear cause and effect. Descriptive research, on the other hand, seek “to portray an accurate profile of persons, events or situations” (Robson, 2011). If the purpose is related to identifying and outlining casual relationships between variables, the study can be termed explanatory. Finally, problem solving approaches are most common in engineering studies. Beyond the nature of a research’s purpose lies the sometimes-disregarded matter that it also should have a certain degree of novelty to it. There’s no point in re-describing what has already been described since research is not exclusively the gathering of information but the use of that information to explore, describe, explain something or solve a problem in a new way. What kind of research being most feasible is highly affected by the purpose of the study, i.e. the research question. The best research questions are simple ones that require a good deal of analysis and which allows the researchers to visualise the goal beforehand as well as the path how to get there. (Badke, 2017)

Evaluating the aforementioned purpose; *identifying, describing and analysing the determinants of revenue growth in technology startups, in terms of their strategy, resources & capabilities, and value proposition*, the explanatory approach is the most appropriate. One of the most important aspirations of this study was to find a relationship between revenue growth and aspects related to the individual case companies, thus connecting cause and effect. These relationships were not known prior to the collection and analysis of empirics, justifying the mean of using the explanatory approach to investigate what those relationships might be. An equally important quality of the explanatory approach was its comprising of modesty throughout the working process, where the authors had to be readily able to reconsider and question old beliefs in favour of empirical evidence.

2.2 Research Strategy

2.2.1 Inductive, Deductive, and Abductive Research

A research strategy should preferably start with determining what role theory will play, since that role highly affects the design of the research project. At a high level, there are three ways of approaching the role of theory. First, if the goal is to test a theory and *hypothesis* based on collected data, the deductive approach is most useful. Much of what we think of as scientific research we owe to the theory of deduction. It involves the crafting of a hypothesis, based on the best available information, and uses collected empirics to verify or reject this hypothesis. The end result is a *logical conclusion*, drawn from the relationship between the hypothesis and empirics. It works best for scientific principles with an abundance of quantitative data collected and verified in a highly structured way. Second, if the aim, instead, revolves around *forming a theory* as a result of data analysis, the inductive approach is preferable. Inductive reasoning aims to explore and understand the meaning individuals and groups ascribe to a social or human problem. Research using an inductive approach is likely to be particularly concerned with the context in which such events are taking place. Therefore, the study of a small sample of subjects might be more appropriate than a large number as with the deductive approach (Saunders, Lewis & Thornhill, 2012). The third and final approach, the abductive approach, is about investigating the relationship between *everyday language and concepts*. This approach can be regarded as a combination of deductive and inductive reasoning and is useful if the researcher's objective is to discover new things – other variables and other relationships – which have not been described before. At its core, abduction deals with the crafting of new concepts and development of new theory, rather than confirming existing ones i.e. theory development rather than theory generation. (Dubois & Gadde, 2002).

Given the objective of connecting *revenue growth* to its stimulants by combining different theories, the abductive approach is deemed superior to this study. Case studies in general provide a unique way of crafting theory by utilising in-depth insights of empirical phenomena and their contexts. However, they tend to involve difficulties related to the interrelatedness of the various elements as well as their cause and effect. In order to overcome this challenge, one should opt for a more flexible structure, ideally applying an iterative approach. In this thesis, that approach involved the iteration of going *back and forth* from one type of research activity to another and between empirical observations and theory. This approach allowed for an expanded understanding of both theory and empirical phenomena and was

necessary given the wide array of theory related to revenue growth, in addition to the intertwined set of activities which seem to cause it.

2.2.2 Quantitative and Qualitative Approaches

Data generally exist in two forms; quantitative and qualitative. Quantitative data refer to data of numerical nature which need to be analysed and interpreted to be of any use. The extent to which data can be processed, generate insight and, at the same time, be statistically reliable depend on its quality as well as quantity. Moreover, quantitative approaches can only focus on a few variables at a time in order to make data visualisations interpretable. Taking a qualitative approach can compensate for this weakness by incorporating multiple variables in a holistic analysis using words and images. It should be emphasised that many studies benefit from the use of both approaches, where the combination provides a more complete understanding of the problem than either approach alone. (Creswell & Creswell, 2014)

In this study, a qualitative approach was chosen with few elements of quantitative reasoning. Revenue itself was best presented using numbers and graphs while the underlying reasons that cause it were extracted through qualitative interviews as well as other secondary sources. Rather than using statistical methods to explain correlation and significance among demonstrated revenue-growth-variables, this study relied predominantly on the author's qualitative interpretation in accordance with theory.

2.3 Research Design

2.3.1 Case Studies

2.3.1.1 Selection

When the researcher selects cases for his or her case study, an implicit formulation of the agenda of the research is also conceived (Seawright & Gerring, 2008). As qualitative studies like this thesis use very small samples, it is paramount that the results from these samples are selected by an adequate process. This is a hard task due to the fact that (1) it is normally not easy to identify a truly representative case, (2) the chosen cases must also include a degree of variation, and (3) background cases often play a role (*ibid.*). A natural objection to this sentiment is the proposition of choosing cases randomly; this would inherently eliminate selection bias. However, probability sampling (of which random sampling is the most familiar example) is an approach that is more common in quantitative research as the results will need to be generalisable to a larger population. For qualitative research, a more appropriate approach is purposive/purposeful sampling according to Merriam & Tisdell (2015); it aims not to measure

frequencies or values, but rather to investigate, discover, and understand phenomena. Thus, the cases selected should be the cases from where the most insights can be drawn (Merriam & Tisdell, 2015). Furthermore, according to Merriam & Tisdell (2015), in order to sample purposefully, the researcher must first determine the selection criteria. The selection criteria are attributes that are crucial for the study. The criteria will directly reflect the purpose of the study, and thus the criteria will have to be printed out and their relevance thoroughly accounted for.

Pursuant to above, purposeful sampling was selected for the selection methodology in this thesis, being the most appropriate given the overall research strategy, which is explanatory in nature. The sampling consisted of technology firms in Sweden where all firms employed a B2B model in order to enhance comparability. The firms were selected with the prerequisite that their products could be assumed to be situated in the *growth* stage in the product life-cycle, although Eliq failed to satisfy this requirement when put under closer scrutiny. Two of the firms offer a SaaS solution, NEAB and Eliq, which is a type of product that has gained significant traction in the last years, especially as a way to monetise software which may prove cumbersome to sell as complete sets. CellaVision on the other hand is active within medicine / biotech, which is a field where Greater Copenhagen, an area which includes Lund, is very prominent. Lastly, the studied firms provide a wide variety in terms of revenue, number of employees, and years active. This enables for a more generic conclusion, that may be applicable to a larger number of firms and organisations.

Throughout the course of this study, a technology startup is defined as a profit-driven organisation that in the future aspires to serve a global market with an offering of a product or service that implements hardware-, software-, or data-based solutions in the main part of the value creation for the customer.

Table 2.1 Selected companies for the case studies, numbers from 2017 (Retriever Business, 2019)

Company	Industry	Revenue mSEK	Number of employees	Founded
Nordiska Entreprenadssystem	SaaS within CMC	21.3	16	2013
Eliq	SaaS within utilities	1.7	7	2008
CellaVision	Medicine	309.3	97	1994

2.3.1.2 Interviews

According to Kahn & Canell (1957), an interview is a discussion with a purpose between two or more people. Saunders, Lewis & Thornhill (2012) elaborates that there are three types of interviews; structured, semi-structured, and unstructured/in-depth interviews. Structured interviews refer to questionnaires based on a standardised set of

questions and can subsequently be used in a quantitative analysis. Semi-structured interviews revolve around same themes and questions for every interview, but the exact form of the interview may differ from case to case depending on the context of the interview. One advantage is the possibility to omit and add (follow-up) questions during the course of the interview, enabling more in-depth knowledge to be extracted. Lastly, unstructured interviews are informal and award the interviewee the opportunity to freely elaborate on themes or aspects at their discretion - there is no predetermined list of questions (*ibid.*).

Due to a number of factors, a non-standardised semi structured qualitative approach was deemed the most appropriate for the research interviews in this thesis. Exploratory and explanatory studies are more likely to incorporate qualitative interview formats, due to the need for understanding of the underlying rationale and context of the interview responses (Blumberg, Cooper & Schindler, 2008). Secondly, when interviewing senior and managerial employees, interviews may be more effective in generating responses when compared to surveys and questionnaires (North, Leigh & Gough, 1983).

2.3.2 Literature Review

According to Brewerton & Millward (2001), the literature review is a method of “thought organisation”, and acts as a structure for the evidence and material gathered. This is a fundamental step in the research process due to two major reasons (Saunders, Lewis & Thornhill, 2012). First, it acts as a preliminary search that aid in the process of refining the area that is subject to research. Second, it is the foundation to the *critical literature review* that enables the researcher to demonstrate awareness of the subject and find the appropriate place for his or her research in a wider academic context. Brewerton & Millward argue that the review should begin with a broad perspective, and subsequently adapt a narrower scope as the research area becomes clearer. The literature review is likely to start very early, and to continue throughout the whole research (Saunders, Lewis & Thornhill, 2012). However, when a pattern starts to emerge, and the issue at hand is becoming clearer, the literature can be sorted and ordered. This will enable the researcher to be more selective thenceforth (Brewerton & Millward, 2001).

There is a plethora of literary sources available; these can be categorised according to their relation to the original source. The proximity to the primary source denotes the level of detail and accuracy possible, however with the risk of becoming less accessible for replicating researchers (Saunders, Lewis & Thornhill, 2012).

Table 2.2 Origin of different sources (Saunders, Lewis & Thornhill, 2012)

Primary	Secondary	Tertiary
Company reports	Books	Abstracts
Conference proceedings	Government Publications	Bibliographies
Emails	Journals	Catalogues
Government publications	Newspapers	Citation indexes
Theses		Dictionaries
Unpublished manuscript sources		Encyclopaedias
		Indexes

As the undertaking of a literature search is a lengthy and complex task, in addition to selecting appropriate types of sources, a literature review strategy is advisable (Rowley & Slack, 2004). See Table below.

Table 2.3 Literature review strategies (Rowley & Slack, 2004)

Literature Review Strategies
1. Citation Pearl Growing An easy approach appropriate for a newcomer to the topic. The review starts from a limited number of documents, and successively expands.
2. Briefsearch A crude search to quickly render of documents to subsequently investigate closer. Appropriate starting strategy.
3. Building Blocks A large number of documents is retrieved in a lengthy process by using variants of terms originating in the research area of interest.
4. Successive Fractions Sort and search within the rendered documents in order to eliminate irrelevant or deprecated documents.

The literature review process in this thesis implemented a combination of the *briefsearch* and the *building blocks* strategy as the scope of the literature review was not entirely fixed as the relevance of the different models were not beforehand determined, and no previous work (except for a limited number of theses circling the topic) was readily available. Finally, a number of documents were selected to be included in the final catalogue of sources. These were prioritised due to either their high number of citations, author's prominence, or general relevance to the topic.

2.4 Analysis of research strategy and design

As discussed in 2.3.1, the research strategy can take the form of a deductive, inductive or abductive approach. This is very much the case for the analysis process as well; especially when analysing qualitative data. Deductive approaches are however usually disfavoured, due to the risk of closing the investigation prematurely, and the risk of introducing theories that are not aligned with the views of participants in a social setting (Saunders, Lewis & Thornhill, 2012). Instead, in the inductive approach, data are collected and subsequently analysed in order to find themes and patterns to follow up and concentrate on. In this approach, the theoretical framework is not clearly defined; instead

the theory emerges from the analytical process by identifying relationships between your data which are subsequently used to test the hypotheses (Saunders, Lewis & Thornhill, 2012). Finally, the abductive approach is, as previously explained, a combination of the inductive and deductive approach (Dubois & Gadde, 2002).

In the figure below, a summarising visualisation of the chosen research strategy is depicted. The placement of the respective markers is estimated in congruence with the argumentation in the two preceding sections.

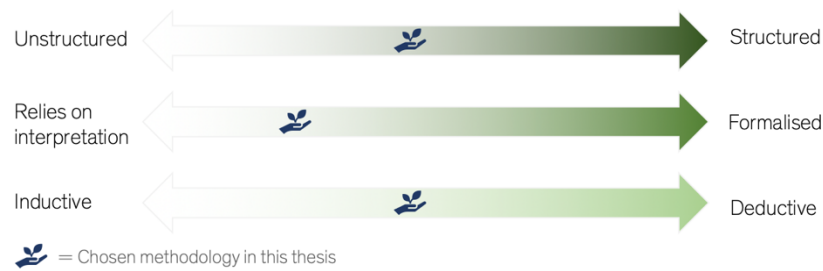


Figure 2.1 Overview of research strategies (Saunders, Lewis & Thornhill, 2012)

In order to adequately analyse the data gathered, the researcher should first be acutely aware of the distinction between qualitative and quantitative data; this will aid in understanding what kind of tools and procedures that are necessary in the analysis (Saunders, Lewis & Thornhill, 2012).

Table 2.4 Quantitative vs. Qualitative data (Saunders, Lewis & Thornhill, 2012)

Quantitative Data	Qualitative Data
Based on meanings derived from numbers	Based on meanings expressed through words
Collection results in numerical and standardised data	Collection results in non-standardised data requiring classification into categories
Analysis conducted through the use of diagrams and statistics	Analysis conducted through the use of conceptualisation

As previously stated, this thesis will analyse qualitative data. There are three types of qualitative research analysis processes; *summarising* (condensation), *categorisation* (grouping), and *structuring* (ordering). These processes are vital in order to (1) comprehend the data, (2) integrate related data drawn from different type of sources, (3) identify key themes, (4) develop and test theories, and (5) draw and verify conclusions (Saunders, Lewis & Thornhill, 2012). Summarising data offers a way to become conversant with overarching themes from the interviews or observations and find new relationships. Categorisation involves two activities; developing categories and the subsequent attaching of them to the data derived from the research (“unitising”). This will enable the researcher to recognise relationships and test propositions. Lastly, structuring of data refers to the provision of context to narrative interview results.

Information regarding what the story is about, the consequences it yielded, and the final outcome enhances comparability between narratives (*ibid.*). This thesis aims to adhere to these concepts to as large extent as possible, by first summarising the interview results in the empirics' section, followed by a categorisation and structuring in the analysis section. Lastly, conclusions are drawn from the processed data.

2.5 Research Quality

Shenton (2004) argues that the trustworthiness of qualitative research, many times is questioned by positivists, most likely because their concepts of validity and reliability cannot be addressed in the same way in naturalistic, qualitative, work. In spite of this opposition, many writers within the field of research methods have attempted to incorporate measures that deal with these issues. Many naturalistic investigators have however, preferred to redefine trustworthiness for qualitative research using different terminology to distance themselves from the positivist paradigm. One of those investigators, Guba (1981), proposes four different criteria to that he believes should be pursued by qualitative researchers to ensure the trustworthiness of their work:

Table 2.5 The four dimensions of research quality (Guba, 1981)

Aspect of research quality	Description
Credibility	Confidence in the truth of the findings
Transferability	Showing that the findings have applicability in other contexts
Dependability	Showing that the findings are consistent and could be repeated
Confirmability	A degree of neutrality or the extent to which the findings of a study are shaped by the respondents and not researcher bias, motivation, or interest

First, credibility is the equivalent of internal-validity in quantitative research and is related to the aspect of truth-value (Korstjens & Moser, 2018). It establishes whether the research findings represent plausible information extracted from the research object (literature sources, interviewees etc.) original data and whether that information is a correct interpretation of the research objects' original view. Second, transferability is defined as the degree to which the result of qualitative research can be transferred to other contexts or situations with other candidates i.e. applicability. The researcher himself is the most important factor, determining the level of transferability by providing information with respect to the research process (*ibid.*). The idea is to enable the reader to assess whether the findings are transferable to their own setting, the so-called transferability judgment. This means that the reader, not the researcher, makes the transferability judgment. Third,

dependability deals with coherency of the analysis process in relation to generally accepted theory and design (*ibid.*). The concept involves participants' evaluation of the findings, interpretation and recommendations of the study such that all are supported by the data as received from participants of the study. Fourth and finally, confirmability refers to the degree to which the findings of the research can be confirmed by other researchers (*ibid.*). Essentially, this implies that the findings must be derived from the empirics and not the researcher's imagination or will to distort the result in favour of his or her own theories.

Throughout this thesis, the *credibility* of the research material has been confirmed by using sources published by well-recognised journals or publishers. Whenever necessary, original data have been used to validate secondary sources, such as articles and books. As for the interviews with the case companies, which to a large extent is a mirroring of each interviewees' subjective experience and opinions, the credibility was more difficult to ensure. Measures were still taken to validate and confirm answers in order to make sure that the authors did not misinterpret certain facts. In terms of *transferability*, this study relies on the content of this specific chapter (Methodology), which should provide sufficient information to replicate the research process. Third, the aspect of *dependability* should be clear as the evaluation of the findings in addition to interpretations, in all cases, have been made on the basis of the literature study and interviews. Finally, the level of *confirmability* should correlate with the reliability of the empirics, which quality assurance already have been clarified.

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3 Theory

3.1 Startup failures - why do they happen?

There are many suitable areas to analyse with respect to growth opportunities for technology startups. In order to find the factors that are most likely to impact the success of the growth strategy, it is reasonable to consult not only success stories, but also knowledge rendered from failed startup projects. As the success of startups is measured by their ability to reach highly ambitious revenue (or volume) goals within a given narrow timeframe, it is of high interest to examine the reasons why startups fail. Thus, the outcome is binary; either the target of growth is reached, or the startup will fail. Research from CBInsights (2018) offers an insight into the various reasons of startup failures, see Table 3.1.

Table 3.1 Reasons for startup failures (CBInsights, 2018)

Reason	% of recipients
No market need	42%
Ran out of cash	29%
Not the right team	23%
Got outcompeted	19%
Pricing / Cost issues	18%
Product without a business model	17%
User Un-friendly product	17%
Poor marketing	14%
Ignored customers	14%
Lost focus	13%
Disharmony among team / Investors	13%
Product mistimed	13%
Pivot misfired	10%
Lack of passion	9%
Failed geographical expansion	9%
No financing / Investor interest	8%
Did not use network	8%
Burn out	8%
Legal challenges	8%
Failure to pivot	7%

Based on these responses, it may be sensible to classify the reasons according to different topics of research; internal factors - stemming from *resources and capabilities*, the interface to the customers – the

value proposition, and the steering of the endeavour in its entirety - the *strategy*.

Table 3.2 Suggested categorisation of the reasons for startup failures

Reason category	Reason	% of recipients
Value Proposition	No market need	42%
	Got outcompeted	19%
	Pricing / Cost issues	18%
	User Un-friendly product	17%
	Product without a business model	17%
	Poor marketing	14%
	Ignored customers	14%
	Product mistimed	13%
Resources & Capabilities	Ran out of cash	29%
	Not the right team	23%
	Lost focus	13%
	Disharmony among team / Investors	13%
	Lack of passion	9%
	No financing / Investor interest	8%
	Did not use network	8%
	Burn out	8%
Other	Pivot misfired	10%
	Failed geographical expansion	9%
	Legal challenges	8%
	Failure to pivot	7%

3.2 A critical view on growth strategy

3.2.1 A brief history of strategic planning

Mr. Henry Mintzberg defined strategy as “deliberate plans conceived in advance of the making of specific decisions” (Mintzberg, 1978). In a business context, Mr. Michael Porter elaborated on the generic strategies a company can pursue in order to achieve success in competitive markets. He defined strategy as “deliberately choosing a different set of activities to deliver a unique mix of value”, which captures these requisites in a concise, yet clear manner. In short, for a company to grow there has to be a deliberate set of activities with the prospect of delivering something that nobody else does. Essentially, what this means is that the organisation has to do something better than somebody else (Porter, 1996). It is crucial, however, to problematise tacit views on how strategy affects business performance, the context in which it is being formulated, and the dynamics of the stakeholders affected.

In the early days of performance management and strategy formulation, traditional management accounting was used. This approach did not trace the cost of products, activities, processes, and cost of quality. Firms subsequently implemented financial accounting measures such as return on investment and earnings per share, but such

measures gave misleading signals to innovation and continuous improvement activities (Yadav & Sagar, 2013). By the end of the 20th century, intangible assets had become the major source for competitive advantage as opposed to during the industrial age. As knowledge and technology seldom have a direct impact on revenue and profit, and the value derived is highly dependent on organisational context and strategy, balance sheets proved highly inaccurate in valuing intangible assets (Kaplan & Norton, 2001). Kaplan and Norton introduced the *Balanced Scorecard*, complementing the financial measures by incorporating operational and strategic measures of performance. Financial performance was identified as a lagging indicator which depends on leading factors such as customer satisfaction, quality, and innovation. This perspective is called the integrative perspective (Yadav & Sagar, 2013). However, all stakeholders were not sufficiently taken into consideration in the Balanced Scorecard according to literature. In the modern business environment where business processes are not executed in an isolated world, a holistic perspective on performance management is needed where a whole system view exists that transcends the boundaries of the company (Sureshchandar & Leisten, 2005).

3.2.2 Defining growth

One of the most important items on the agendas of technology startups relates to revenue growth. Revenue being a factor of volume and price, deductively means that either volume, price, or a mix of both must increase to generate growth, *ceteris paribus*. Thus, a growth strategy can focus on either one or both of those components. One of the pioneers within the field of corporate strategy during the 60's, Mr. Igor Ansoff, encapsulated this concept in a simple matrix, which later became known as the Ansoff Matrix. The Ansoff Matrix combined market- and product development to define four ways of growth that companies could choose between (Ansoff, 1957). While Mr. Ansoff might have oversimplified matters to render his model more comprehensible, it can still act as a roadmap for defining strategy at a very high level.

Later on, the organisational theorist Mr. David Aaker developed and refined Mr. Ansoff's theories of corporate strategy to include the development of a sustainable competitive advantage which encompasses underlying distinctive competences or assets, appropriate objectives, functional area policies and the creation of synergy (Aaker, 1984). Ultimately, the choice of growth strategy with the best chance of success will depend on the industry a company operates in, as well as its individual characteristics (Durmaz & Ilhan, 2015). However, when implementing a new strategic direction for an existing business unit (or when starting a new business) the same

impediments to success as discussed earlier will have to be accounted for as in any other transformation process.

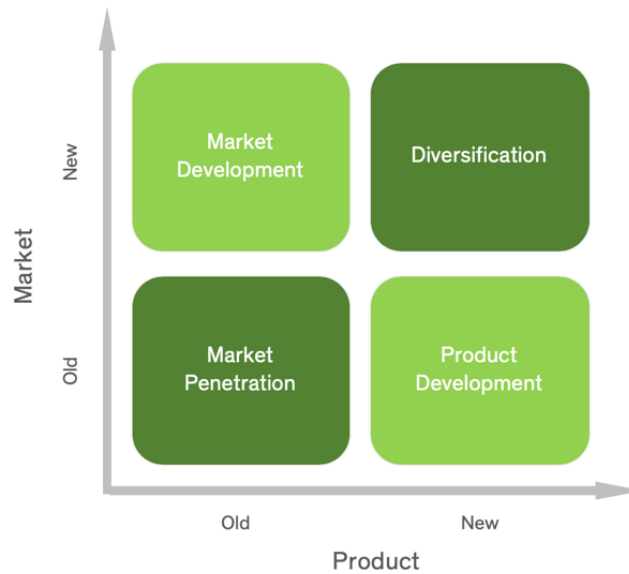


Figure 3.1 The Ansoff Matrix (Ansoff, 1957)

Once a growth strategy has been agreed upon, businesses have two alternatives when it comes to the execution phase, i.e. the growth method (Ortiz-de-Urbina-Criado, Angel Guerras-Martin & Montoro-Sánchez, 2014). They can pursue growth organically by expressing economical, physical, social and organisational growth without external interaction, or they can pursue inorganic growth through strategic partnerships or mergers and acquisitions (Durmaz & Ilhan, 2015). Both methods have their respective benefits and drawbacks and suit companies to a varying degree, contingent on the choice of growth strategy. While specialisation, defined by Ortiz *et al.* as market development and market penetration, allows a firm to exploit its resources without taking high risks, related diversification (i.e. diversification and product development) presents the opportunity to share and transfer resources across a wide range of industries. In this case, risks tend to be more imminent, particularly if the transfer is difficult or resources are overvalued (Ortiz-de-Urbina-Criado, Angel Guerras-Martin & Montoro-Sánchez, 2014)

3.2.3 Choosing the right growth strategy for technology startups

The concepts presented in the previous section dealt with growth strategies for companies in general. Since startups, with respect the Ansoff Matrix, are limited to pursue only two paths, diversification and product development, extended theoretical material is required to more exhaustively present their strategic opportunities. The limitation stem from the fact that startups develop new products to be sold in markets that are either existent or non-existent as of today. Thus, one

of the most important strategic decisions for such firms becomes - what market and what product?

In general, startups can choose between four different kinds of strategic orientations with respect to market type, each requiring a very different set of components to turn into a successful company (Blank, 2007):

- (1) *Enter an existing market*
- (2) *Create an entirely new market*
- (3) *Resegment an existing market as a low-cost player*
- (4) *Resegment an existing market as a niche player*

A new product in an existing market (1) is the case when the product or service offers higher performance than what is currently offered. Higher performance usually refers to a solution that does something faster, more accurately or substantially improves what is already on the market. Startups who choose (2) do so to create a large customer base who were unable to do something before because their need was not worth filling or impossible to fill with current technology. The product can also offer a new kind of availability, skill, convenience or location that hitherto was non-existent. New markets are, by nature, free from competition while the customers and market are unknown. The alpha and omega of this direction is to understand where the customer base is and if they can be convinced to buy the new product and whether customer adoption can occur in a reasonable timespan. In addition, it requires a well-developed funding strategy as the management of cash burn until the company becomes cash flow positive. (3) exploits customers at the low end of the market spectrum who are willing to buy good-enough performance if they can get it at a lower price. Startups who choose this path do so due to a cost base which is low enough to offer better prices than incumbent companies and allow for profits. (4) resembles (3) in that it targets an existing market but differs in terms targeted customer segment. Instead of focusing on costs, startups who adhere to this category ask themselves if some part of the market would buy a new product or service if designed to address their proper needs, even if it cost more. Another way to put it is that niche resegmentation attempts to convince customers that some characteristic of the new product is radical enough to change the rules and shape of an existing market.

The last market entry alternatives Mr. Blank presents, (3) and (4), bear close resemblance to Mr. Porter's generic strategies as described in his magnum opus *Competitive Strategy* (Porter, 1980).

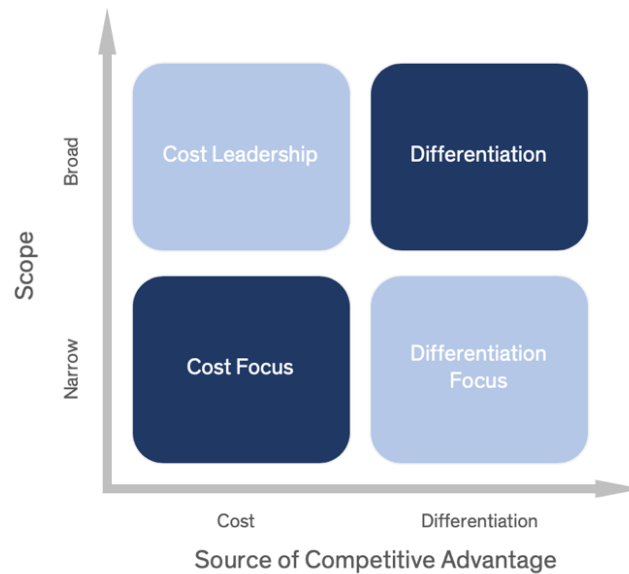


Figure 3.2 Porter's competitive strategies (Porter, 1980)

Mr. Porter suggest four different generic strategies that companies can pursue to successfully compete in the marketplace; *Cost Leadership*, *Differentiation*, *Cost Focus* and *Differentiation Focus*. What Mr. Blank presents as (3), Mr. Porter outlines as cost leadership or cost focus, which can yield above-average returns in an industry by tight managerial attention to cost control enabled by efficient-scale facilities and cost minimisation in areas such as service provision, sales force and advertising. In the same way, Mr. Porter's third and fourth strategic option, differentiation and differentiation focus, are closely related to Mr. Blank's (4). Mr. Porter describes differentiation as differentiating the product or service, creating something that is perceived industrywide as being unique which can be achieved through design or brand image, technology, quality or other dimensions. A differentiation strategy does not, however, allow the firm to ignore costs even though it is not the primary strategic target. Focus strategies in general advocate the targeting of a particular buyer group, segment of the product line or geographic market, and is thus applicable to both differentiation and cost. The combination and integration of the three models is illustrated in Figure 3.3.

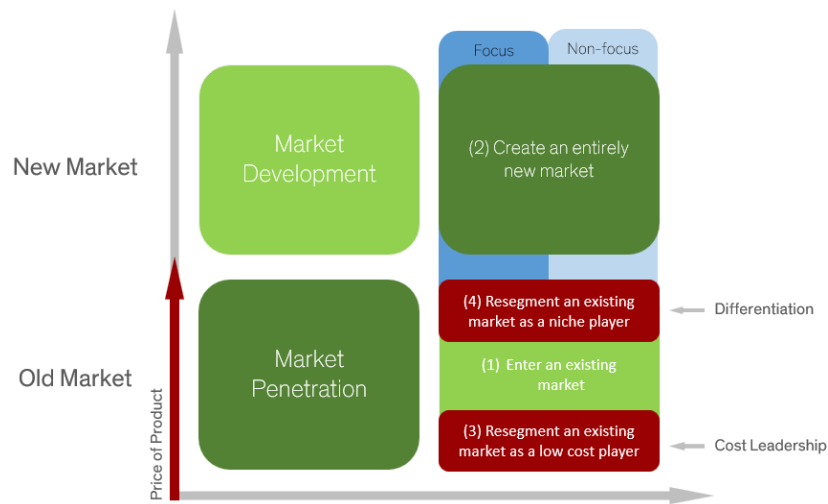


Figure 3.3 Market entry strategies in comparison to Porter's generic strategies – The Modified Ansoff Matrix (Porter, 1980; Blank, 2007)

The array of strategic alternatives, presented by Mr. Blank, call for different approaches to the market which the startup targets. In existing markets, startups first and foremost need to understand how their product differs from that of the incumbents and what features of their enhanced product that will allow the company to capture a share of the specific customer segment. Some of the most important questions for startups in this category are summarised in Table 3.3.

Table 3.3 Aspects to consider when entering an existing market (Blank, 2007)

(1) Enter an existing market
1. Who are the competitors and who is driving the market?
2. What is the market share of each of the competitors?
3. What is the total marketing and sales budget the market share leaders will be spending to sustain their positions?
4. Can the cost of entry be quantified?
5. Are the performance attributes that customers value known? How do competitors define performance?
6. How do competitors define the market?
7. Are there existing standards? If so, whose agenda is driving the standards?

Moreover, by choosing the two key attributes of the offering, such as feature/technology and channel/margin the startup can visualise the product attributes in a competitive 2x2 diagram and thereby facilitate the understanding of the company's position relative to incumbents. The diagram can also be used when defining the competitive advantage about the product and what axes (features) along which competitors can be attacked. This is visualised in Figure 3.4.

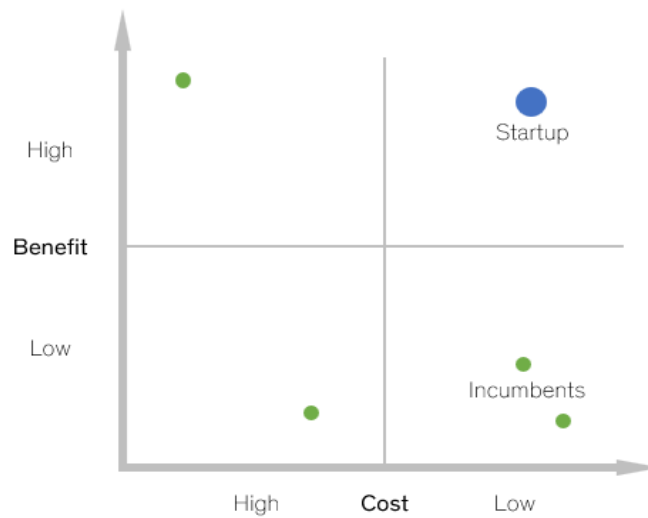


Figure 3.4 Example of a competitive 2x2 diagram (Blank, 2007)

The second kind of startup, the ones who enters, or creates, a completely new market might at first glance be excited about the prospect of having no competition and hence a lucrative pricing dynamic. The flip side, however, is the absence of existing customers. Here, the key factor of success is not to beat other companies with more advanced or better product features but to convince customers that the startup solves a real problem they have or can be convinced they have. Relevant questions to study in this context include:

Table 3.4 Aspects to consider when creating an entirely new market (Blank, 2007)

(2) Create an entirely new market
1. What are the adjacent markets next to the new one?
2. What compelling need will make customers use/buy the product?
3. What compelling feature will make customers use/buy the product?
4. How long will it take to educate potential customers and grow a market of sufficient size?
5. How will the market/customers be educated? How will demand be created?
6. Given no customers yet exist, where are realistic year one through three sales forecasts?
7. How much financing will be needed until the company has become cash flow positive?
8. Is it possible to define the product as either resegmenting a market or as entering an existing one?

For companies aspiring to resegment an existing market there are, on a high level, two ways to play - either being a low cost or finding a unique niche. Key issues for companies of this character to consider include the following:

Table 3.5 Aspects to consider when resegmenting an existing market (Blank, 2007)

(3), (4) Resegmenting an existing market
1. What existing market are your customers coming from?
2. What are the unique characteristics of those customers?
3. What compelling needs of those customers are unmet by existing companies?
4. What specific features of the product will get customers of existing companies to abandon their current suppliers?
5. Why couldn't existing companies offer the same thing?
6. How long will it take to educate potential customers and to grow a market of sufficient size?
7. How will the market/customers be educated? How will demand be created?

For this type of startup, there is a benefit to draw both a competitive diagram as well as a *market map*, since these types of ventures effectively aspires to create a new market by resegmenting an existing one while at the same time being subject to a competitive threat. A market map shows in a very clear and concise way why a company is unique and should be drawn with the company in the centre.

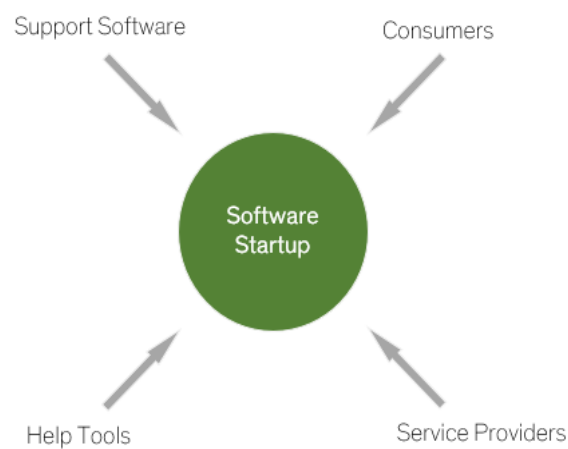


Figure 3.5 Market map of a software startup (Blank, 2007)

3.2.4 Implementing growth strategy

Even if a strategy is perfected and fully aligned with strategic capabilities and market opportunities, it still has to be implemented in the organisation and effectuated. According to McKinsey (2015), a consultancy, few company transformations succeed. When probing executives for information on the transformations they are most familiar with, only 26 per cent say they have been successful at both “improving performance” and “equipping the organisation to sustain improvements over time”. Mr. John Kotter conducted extensive research on why transformations fail and how to successfully implement them. In his magnum opus *Leading Change* (Kotter, 1996),

he derives transformation failures from factors related to complacency, leadership, communication, and vision. To successfully implement change, he argues, organisations should follow an eight-step process which initially creates a sense of urgency, and ultimately institutes change in the organisation, see Table 3.6.

Table 3.6 Kotter's eight step process (Kotter, 1996)

The eight-step process for leading change	
1. Create a Sense of Urgency	Communicate the importance of immediate action through bold and aspirational statements
2. Build a Guiding Coalition	Lay the foundation for the building of a volunteer army by forming a coalition of effective people to guide and coordinate it.
3. Form a Strategic Vision and Initiatives	Enable people to share a vision by clarifying how the future will be different from the past by driving through the changes.
4. Enlist a Volunteer Army	In order to enable large-scale change, a massive number of people must move in the same direction - create buy-in and solidify the urgency.
5. Enable Action by Removing Barriers	Provide the necessary freedom and break down functional silos by eliminating inefficient processes and hierarchies.
6. Generate Short-Term Wins	Track progress and energise volunteers by recognising and communicating results.
7. Sustain Acceleration	Follow up change with additional changes; utilise the increasing credibility to improve systems, structures, and policies.
8. Institute Change	Solidify new behaviours by communicating the connections to organisational success.

Mr. Kotter has since elaborated on his theories, resulting in the work *Accelerate - Building strategic agility for a faster moving world* (2014) where he argues that traditional managerial hierarchies are unfit for seizing on *big opportunities* that arise in a fast-changing world. Instead, building on the eight-step process (now labelled *accelerators*) organisations should adapt a *dual operating system* (table 3.7), where the virtues of a vaguely organised network organisation observed in startups, are combined with the accountability and authority of management-driven hierarchies. This view will enable small organisations aspiring to grow, and large firms that have lost their agility, to take action on big opportunities that arise in the market.

Table 3.7 The dual operating system (Kotter, 2014)

The dual operating system		
Management-driven hierarchy		Strategy acceleration network
Primary function	↔	Primary function
Reliability and efficiency		Agility and speed
Other functions	↔	Other functions
Incremental change		Constant innovation
Predictable change		Leadership development
Action through management tools	↔	Eight accelerators
Plans/Budgets		Urgency on Big Opportunity
Job description		Guiding coalition of volunteers
Compensation		Change vision and strategic initiatives
Metrics		More and more volunteers
Problem solving		Barriers knocked down
		Wins celebrated
		Relentless action
		Changes institutionalised

In contrast to Mr. Kotter’s work, that aims to provide frameworks that fits for both small startups as well as mature companies, Mr. Steve Blank focuses exhaustively on startups, and how leadership and organisational factors can provide the foundation for a *lean startup*. In “Four steps to the epiphany”, Mr. Blank outlines the steps subsequent to the market selection (or customer development) process, in the form of company building. He identifies four phases that new firms or ventures must iterate through in order to avoid fading into oblivion, or expediently spending funds without effective results.

Table 3.8 Mr. Blank's four phases (Blank, 2007)

Phase	Components
1. Reach mainstream customers	Transition from earlyvangelists to mainstream customers Manage sales growth
2. Review management and build a mission centric organisation	The board reviews the CEO and executive staff Develop a mission centric organisation and culture
3. Customer development team into functional departments	Craft department mission statements Define department roles
4. Build fast-response departments	Implement mission-centric management Create a culture for information gathering Build a leadership culture Iterate and grow

In order to put these phases into context, these are presented in Table 3.9, in conjunction with a mapping to Kotter’s eight step process, as proposed by the authors.

Table 3.9 Kotter's eight step process vs. Blank's customer development model
(Kotter, 1996; Blank, 2007)

Phase	Kotter's 8-step process							
	1	2	3	4	5	6	7	8
1. Reach mainstream customers								
2. Review management and build a mission centric organisation		✓	✓		✓			
3. Customer development team into functional departments				✓	✓			
4. Build fast-response departments						✓	✓	✓

The first phase, *Reach mainstream customers*, focuses on the transition from the customer subgroups innovators and early adopters, to the early majority (also known as crossing the chasm). The research conducted in the customer development process is taken action on; the path forward will be highly determined by the chosen *market type*. In the next phase, *Review management and build a mission centric organisation*, heavy emphasis is put on the difference between the competence needed in an organisation focused on learning and discovery, and an organisation apt for acquiring mainstream customers. This can be a highly disruptive process, with severe implications for individuals and potentially the whole company. This shift can be compared to steps 2, 3, and 5 in Kotter's framework, which highlights the guiding coalition, strategic vision, and the removal of barriers respectively. The next phase, *Customer development team into functional departments*, focuses conversely on the employees in the now superseded customer development teams. Depending on the market type, the new departments will have different goals; adequate formalisation of the departments cannot happen without proper preceding mission statement formation and role definition. Thus, this phase can also be compared with Kotter's strategic vision formation and the removal of barriers (in terms of now obsolete roles). Furthermore, the employees will function as the volunteer army that now focuses on achieving large-scale growth instead of catalysing growth. Lastly, in order to avoid creating a monolith unable to respond to swift changes in the chosen market type, the last phase *Build fast-response departments* is dedicated on the establishment of an organisational culture that promotes trust, communication, and knowledge transfer, as well as a profit-driven firm that produces predictable revenues and expenses. The last component is the reiteration of the whole process, where discrepancies from plan are accounted for and rectified. This last phase can be compared to Kotter's last steps, where financial performance is communicated, the acceleration is sustained by creating a mission-driven culture, and the changes are institutionalised.

3.3 The resource-based view from a startup perspective

3.3.1 Brief history of the resource-based view

In a world where external environment is undergoing major transformation with irregular time intervals at a fast pace, the need for robust and internal, company-specific, factors are becoming increasingly important to generate growth (Chang & Singh, 2000). The internal components can be defined as a company's resources and capabilities, forming the basis for defining the core competencies (Osterwalder *et al.*, 2014). A resource is defined as anything that can be recognised as a strength or a weakness or assets that are tied semi permanently to a specific firm, such as brand names, in-house knowledge of technology or employment of skilled personnel (Wernerfelt, 1984). A capability, on the other hand, refers to the business routines, processes and the organisational culture of a particular firm (Barney, 1991). The resource-based view, first coined by Wernerfelt (1984) and later developed by Barney (1991), takes a holistic viewpoint of a firm's resources and capabilities to craft its *sustainable competitive advantage* (SCA) and, in turn, superior value creation. In essence, a SCA is defined on the basis of difficult-to-imitate attributes of a company and is the primary source of superior value creation and competitive advantage. Much like Mr. Porter, Mr. Barney argues that a firm has a sustained competitive advantage when it's implementing a value creating strategy not simultaneously being implemented by any current or prospective competitor and when these firms are unable to duplicate the benefits of this strategy (Barney, 1991).

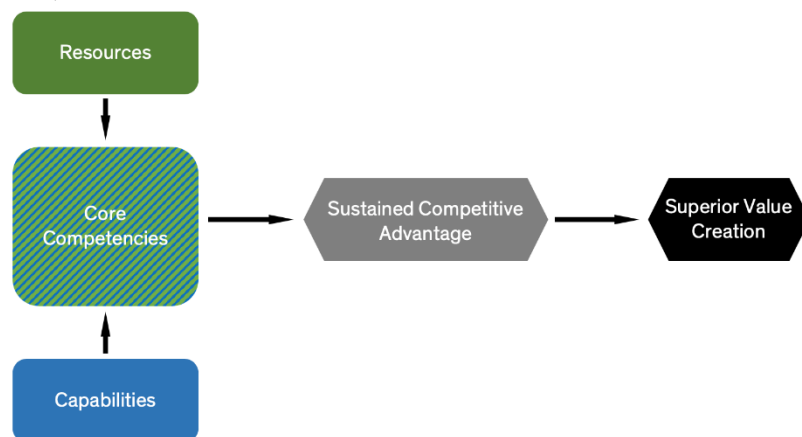


Figure 3.6 The different components of superior value creation (Barney, 1991)

While the resource-based view initially focused on larger and mature corporations, researchers soon began dedicating more time to study the implications for smaller companies. Rangone (1999) presented a perspective on how SMEs can develop a SCA based on 14 different case studies and concluded that three core capabilities stood out as

particularly important; innovative capabilities, production capability, and market management capability. The entrepreneur was found to be a special resource in SMEs, strongly influencing whether the steps required to achieve a SCA are actually implemented. However, Mr. Rangone fails to determine what the specific attributes of the entrepreneur really are (*ibid.*).

Table 3.10 Capabilities vital to SMEs (Rangone, 1999)

Capabilities	Description
1. Innovation capability	A company's ability to develop new products and processes and achieve superior technological and/or management performance (e.g., development cost, time-to-market, etc.)
2. Production capability	The ability to produce and deliver products to customers while ensuring competitive priorities, such as quality, flexibility, lead time, cost, dependability, etc.
3. Market management capability	A company's ability to market and sell its products effectively and efficiently

3.3.2 The individual - the significance of the entrepreneur

In an effort to determine some of these attributes, Castanias & Helfat (2001) identified the nature of cognitive aspects as being particularly important, reasoning that not all entrepreneurs possess the qualities or level of skills necessary to turn idea into reality. Westhead and Wright (1998) argues that the difference in proficiency could stem from varying experience from the entrepreneurial context, hypothesising that novice entrepreneurs display other characteristics than habitual entrepreneurs. This view is confirmed by Odorici & Presutti (2013), who study the effect of entrepreneurial experience in influencing the different manifestations of strategic orientation, through a comparison of eight Italian born global startups. Odorici & Presutti assert that the most notable difference between the two groups relates to the market orientation dimension, where habitual entrepreneurs embraced a more market-oriented mind-set, systematically analysing customer needs before initiating product development. Novice entrepreneurs, on the other hand, exhibited a more limited market orientation, where product development superseded market- and customer analysis. Commonly, this was due to the entrepreneur's personal innovativeness rather than an innovative response to a customer's needs.

Experience of previous ventures aside, the notion that the entrepreneur him or herself is a startup's most important resource is today a ubiquitous phenomenon. A startup can, in many aspects, be defined as a function of the entrepreneur and his/her qualities in terms of passion, experiences and knowledge. Therefore, by examining the entrepreneur himself/herself one can gain a better understanding of what the entrepreneurship, i.e. startup, is going to look like in the future. An eloquent analogy would be that the position of an object moving

through space, under the influence of gravity, can be predicted by observing its initial velocity and launch angle.

As researcher have continued to expand our understanding of the qualities that are distinguishable in entrepreneurs in terms of how they perceive, recognise, conceive, judge, sense, reason, remember and imagine, there has been an increasing need to identify what the key traits are. The research company Gartner have examined much of this literature and identified 14 different characteristics that entrepreneurs tend to possess. These are summarised in Table 3.11 (Gartner, 1989).

Table 3.11 Gartner's list of 14 entrepreneurial characteristics (Gartner, 1989)

Characteristics	Description
1. Determination and perseverance	More than any other aspect, total dedication to success and focus on advantage can overcome obstacles and setbacks
2. Drive to achieve	Entrepreneurs are generally internally driven by a strong desire to compete and excel against self-imposed standards
3. Opportunity orientation	The constant awareness of opportunities that exist in the everyday life tend to be the entrepreneurs focus rather than resources, structure or strategy
4. Persistent problem solving	Successful entrepreneurs do not fear difficult situations. Rather, their self-confidence seem to make them believe that the impossible just takes a little longer
5. Seeking feedback	Entrepreneurs tend to desire constant feedback to know how well they are doing and become even quicker learners
6. Internal locus of control	The belief in oneself and the notion that the fate of the startup is within own control and influence are ubiquitous in successful entrepreneurs
7. Tolerance for ambiguity	The uncertain environment of startups means that the entrepreneur must be able to handle stress and cope with the lack of organisation and structure
8. Calculated risk taking	The ability to calculate risk in a precise way and do everything possible to get the odds in one's favour
9. Tolerance for failure	This implies that entrepreneurs regard failure as an opportunity to learn and not as a disappointment and emotional setback
10. High energy level	A heavy workload and stressful demands faced by entrepreneurs must be compensated by a high level of energy
11. Creativity and innovativeness	Creating value for customers often stem from an innovative and creative skill
12. Vision	Entrepreneurs know where they want to go and what the company should look like in the future even if this vision might not always be predetermined
13. Passion	Passion is a fundamental emotional experience for entrepreneurs and translates into a strong devotion to their work
14. Team-building	While often being strong individuals, successful entrepreneurs realise that they need to have qualified and well-motivated teams to help handle the new venture's survival and growth

Apart from the entrepreneur, startups rely on other resources to generate growth and unlock the full potential of the company. These resources are threefold. First, financial capital, i.e. money, is the core of what entrepreneurs use to exploit other resources as they pursue the value creating process of developing a product or service. In essence, there are two ways of acquiring financial capital - either from the entrepreneur's own pocket or from external investors. The second type of resource vital to new ventures is human capital, which incorporates the employee's knowledge, skills and intellectual outputs among others. Entrepreneurs trade this kind of talent for money, trust or equity to acquire what is defined as *human resources* or labour (Australia,

Kuratko & O'Connor, 2015). In his book *From good to great - why some companies make the leap and others don't* (2001), Mr. Jim Collins underlines why people, the human resources, is one of the most important assets to transform a corporation, whatever its orientation might be. He presents three simple truths that successful corporate leaders have understood. First, it's a lot more advantageous to start with "who" rather than "what" should the direction of the company change down the road. If the right people in the company are there because of who else is there, they will be more receptive to changing environments and adapt quicker. Second, the right people will require less managing and motivation since they, to a large degree, often will be *self-motivated* by the inner drive to produce the best results and be part of creating something great. Third and finally, if a company has the wrong people, it does not matter whether the right direction is defined and crystal clear - it still won't be a great company. *Great vision without great people is irrelevant*, Collins concludes (Collins, 2001).

The third and last kind of resource technology startups need to think about is the social capital, also defined as the value of the entrepreneur's network. Entrepreneurs are often said to value people in their network more than the current know-how of the startups since the right know-how always can be acquired (Australia, Kuratko & O'Connor, 2015). Social capital is in other words crucial to leverage the collective relations and social connections of the startup and acts as the primary channel between the internal and external environment to fill the required gaps in resources and capabilities. (Deeds & Hill, 1996)

3.3.3 The company - capabilities vital to technology startups

Having outlined the characteristics of the individuals, the focus of this section now shifts to broader, organisational aspects and what capabilities that are needed in such a context. Mr. Frederick Betz (1998) identified 10 kinds of capabilities necessary for technology startups which are presented in Table 3.12.

Table 3.12 Overview of Betz's 10 capabilities

Betz's Capabilities vital to technology startups
1. Access to venture capital
2. Development of new products, new services, or a prototype
3. Building product capacity
4. A way to increase sales
5. A way to increase profits
6. Ability to expand production
7. Ability to overcome the challenges of competitors
8. Improvement of product quality and diversification
9. The establishment of organisation and management systems
10. Management of current assets

Moreover, Madhani (2010) summarised, on the basis of earlier work on RBV, some of the most common resources and capabilities among companies in general. The Table on the next page displays Mr. Madhani's categorisation and links his logic to that of Mr. Betz.

Table 3.13 Madhani's vs. Betz's capabilities (Madhani, 2010; Betz, 1998)

Madhani (2010)		Betz (1998)
Tangible resources and capabilities		
Financial	Ability to generate internal funds	(4),(5)
	Ability to generate external capital	(1)
Physical	Location of plants, machines, offices, and their geographic location	
	Access to raw materials and distribution channels	
Technological	Possession of patents, trademarks, copyrights and trade secrets	(2)
	Formal planning, command and control systems	
Organizational	Integrated management and information systems	
Intangible resources and capabilities		
Human	Managerial talents	(10)
	Organizational culture	(9)
Innovation	Research and development capabilities to innovate new product, process and serv	(2)
	Capacities for organisational innovation and change	(6)
	Perceptions of product quality, durability and reliability among customers	(7)
	Successful product branding and positioning with satisfied and loyal customer bas	(7)
Reputational	Reputation as a good employer	(2)
	Reputation as a socially responsible corporate citizen	(2)

According to Deeds (2001), research and development capabilities to innovate new product, process or services (2), should receive highest priority in technology startups. This capability is used to produce IP, which is also one of the most powerful indicators of a firm's effort to achieve high levels of technology in the startup process. Likewise, the corresponding resource of technical and scientific experts to the startup team, where some or all individuals have scientific or technical skills, has also proved to be vital (De Carolis *et al.* 2009). These findings resonate well with those of Yang, Bossink & Peverelli (2017), who verify the relevance of R&D resources, defined as past R&D investment or capital intended for it, as well as scientifically skilled employees. The data from their study support the conviction that the combined use of these resources has an amplifying effect on the chances for technology startups to survive and can act as a barrier to prohibit imitation from competitors.

As in any other venture, technology startups cannot solely rely on their ability to innovate in order to grow (Naumov, 2017). Apart from creating value, value must also be delivered, defined by Betz as (4). There are multiple ways of delivering value to the customer, however, they are all partly contingent upon the sales capabilities of the human capital (Gilbert & Davies, 2011). Given the limited funds available, startups generally have a hard time attracting sales professional with relevant experience and end up with sub-optimal talent, who very often experience the entrepreneurial world for the first time (Gilbert & Davies, 2011). Therefore, new technology ventures should focus, in addition to R&D, on building capabilities to identify customer segments with a willingness to purchase the new technology product/service. Doing so makes the case for successful marketing and sales much easier and can compensate for the lack of prior experience and expertise within those areas (Betz, 2011).

3.4 Designing a value proposition that enables growth

3.4.1 Defining value

The RBV, as described in the former section, is concerned with the resources and capabilities of a firm, and their respective properties related to value, rarity, imitability and substitutability (Barney, 1991). The value these resources subsequently can yield, is derived from the resources' contribution to the process of meeting customer needs (Bogner & Thomas, 1994; Verdin & Williamson, 1994). According to classical microeconomic theory, customers aim to maximise their marginal utility. As a consequence, a critical question raises itself naturally - How do firms capitalise on this marginal utility of a product or service?

According to Bowman & Ambrosini (2000), in order to establish a coherent definition of the term value in the context of a transaction between an organisation and a customer, it is imperative to differentiate between two phenomena; *Perceived use value*, and *Exchange value*. Perceived use value denotes the subjective value defined by customers, based on their perceptions of the usefulness of the product. Exchange value, as a contrast, is the price point realised during a transaction. Bowman & Ambrosini stipulates that “firms create perceived use value, and through the sale of products, exchange value is created”. Furthermore, they argue that value-capture (exchange value) is determined by the bargaining relationships between buyers and sellers (Bowman & Ambrosini, 2000); the customer’s bargaining power is enhanced by the presence of close viable substitutes, combined with low switching costs (Porter, 1980).

3.4.2 The generic value proposition

In order to outline a strategy for capturing the exchange value, the questions of importance in need of address are *What is our target market?* and *What is our value proposition?* (Armstrong, 2009). These two questions are highly interrelated and practically inseparable. Naturally, the target market should be the market where a potential feasible value proposition could generate the most revenue. One question arises naturally; what are the components of a value proposal, and in effect, the catalyst for realising the revenue potential?

When designing the value proposition, the *willingness-to-pay* (WTP) is considered the cornerstone upon which the marketing strategy is built (Anderson, Jain & Chintagunta, 1993). Formally, the WTP can be defined as “the price at which the customer is indifferent between buying and not buying the product” (Jedidi & Zhang, 2002). However, the features of the product or service can be of varying importance for the customers, thus affecting the WTP. Therefore, after having determined the WTP for the different features of the product or service, a segmentation strategy should be designed. Segmentation can be defined as a break-down of the market in different groups, where the organisation can act differently (Ramanujan & Tacke, 2016). Such actions involve modifying parameters related to pricing, product configuration/bundling, marketing message etc. It makes sense for profit-driven organisations to design a value proposition that appeals to the target market’s most important needs and wants and omit unnecessary profit- and focus-draining features. In addition to contain costs, an early WTP focus ensures that the company captures all potential revenue rendered from the value the product or service brings to the customer. This is commonly known as *value-pricing* (Ramanujan & Tacke, 2016).

The last major puzzle piece in the value proposition concerns decisions related to product configuration and bundling. Product configuration (sometimes, especially within software development, used interchangeably with bundling) can be defined as the set of features included in a version of the product or service. Bundling usually refers to the packaging of two distinct products or services, normally with alterations to the price structure. When deciding on the product configuration, the common approach is to create different versions of the product according to the logic of “Good, better, best” (or similar). The rationale behind this classification is based on the provision of a choice for customers that are price conscious (good), quality conscious (best), and the customers in between (Mohammed, 2005). This also provides more options in a negotiating situation, where a “good” option can act as a fallback proposition. Furthermore, it can be advisable to categorise the implementable features as *Leaders*, *Fillers*, *Killers*, and *add-ons*. Leaders are the features that customers are craving for, and the main reason they purchase a product of the like. Leaders can successfully be bundled with a filler feature, in order to increase WTP for the product, and in effect the exchange value. Fillers are “nice to have” but will not on their own pursue customers to buy the product. Killers, au contraire, refer to features that may deter the customers from purchasing a product, but may serve as a standalone product (Ramanujan & Tacke, 2016). It should not be bundled with the leader, and in some cases even be divested. Lastly, add-ons should be readily available for purchase, and could potentially be further developed into new leaders, with their own WTP. These characteristics can be fitted on a 2x2 matrix, with expected adoption and perceived value on respective axes.

High	Expected Adoption	Fillers	Leaders
		Product / Feature	Product / Feature
Low	Expected Adoption	Killers	Add-ons
		Product / Feature	Product / Feature
		Perceived Value	
		Low	High

Figure 3.7 Expected adoption vs. perceived value (Ramanujam & Tacke, 2014)

An alternative view of the value proposition can be rendered by building on a product view, as in *Principles of Marketing* by Kotler & Armstrong (2007). In their work, essential for professionals and academics concerned with marketing, they present the *Three levels of product*. The model illustrates several (three or more) levels of a products, where each level adds more customer value. The most basic level is the *core benefit*, which addresses the question *What is the buyer really buying?* When purchasing a refrigerator, is the underlying need a box with a low inner temperature, or a way to prolong the life

of stored groceries? The second layer productise the core benefit in an actual, marketable, and sellable product. Lastly, the *augmented product* layer acts as an overlay to the purchase and usage, facilitating the transaction, installation, and troubleshooting; effectively lowering the threshold for purchase as well as enhancing customer value (Kotler & Armstrong, 2010). However, the model does not connect between customers and their corresponding willingness-to-pay, thus rendering it inadequate as a complete tool for the design of a value proposal, however invaluable for presenting a facile theoretical dissection of a product.

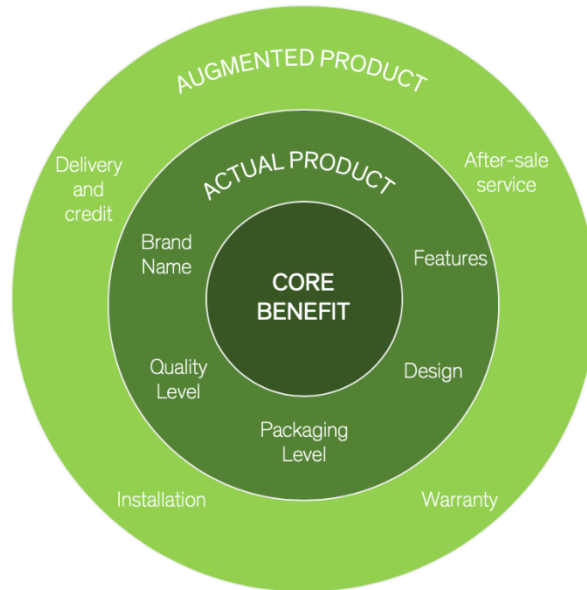



Figure 3.8 The three levels of the product (Kotler & Armstrong, 2010)

In order to generate sustainable revenue, a monetisation strategy should be devised; outlining how the customer pays for the new product or service. Ramanujam & Tacke (2016) prescribe a number of alternate monetisation models that have gained traction in widely different applications unimaginable just decades ago (such as the advent of streaming services for music); *subscription pricing*, *dynamic pricing*, *auctions*, *alternative metric pricing (AMP)*, and *freemium*. The suitability of the mentioned model, in turn, is dependent on a number of factors, see Table 3.14.

Table 3.14 Aspects to consider when choosing monetisation model (Ramanujam & Tacke, 2014)

Questions to address
1. How likely are your customers to accept the model?
2. How will future developments impact the model?
3. What stage is your company in and does your model choice fit that?
4. What are your competitors doing?
5. How difficult is the monetisation model to implement?

Selection of monetisation model


Three of the above-mentioned monetisation models; subscription, alternative metric pricing, and freemium, are integral in a fairly new phenomenon; servitisation (Tauqeer & Bang, 2018; European Commission, 2016). Due to the increasing intermeshing of business, technology and information, companies are realising that their products alone may not be sufficient to yield a competitive edge and satisfy the full spectrum of their customers' needs. Many customers now demand full integration of the products in their business flows, where uptime and up-to-date equipment and software are more relevant factors than the actual equity of a product (Elfving, Lindahl & Sundin, 2015). E.g. when a manufacturing firm incorporates a service perspective, equipment sales and service are not separate activities in time, but rather a continuous reciprocal relationship between provider and customer, where both internal (cost savings for the company) and external values (customisation) can be the primary objective. The value proposition evolves with the market as well as the business relationship, and together with technological development, creates new opportunities to maximise revenue and enable cost savings both for the company as well as the customer (Kowalkowski, 2008).

3.4.3 Augmenting the value proposition for technology startups

The above theory examines value proposal theory from a generic perspective. However, as this study focuses on technology startup firms, it is imperative to contrast theories applicable to this industry. While technology startups may be more agile than their more mature counterparts, a number of factors unique to technology startups can impede the implementability of traditional marketing strategies. Firstly, technology startups are burdened by high R&D investments, increased uncertainties, and intense competition for new products. These characteristics have several ramifications for the design of the

value proposal. For example, in the choice between differentiation and cost leadership as a business strategy, a cost leadership strategy is unrealistic due to the lack of economies of scale and uncertainties prohibiting extensive investments (Yetisen *et al.*, 2015). Secondly, the value provided by their product or services are not necessarily as evident as in traditional industries (Yetisen *et al.*, 2015). Whereas traditional industries only occasionally introduce innovations that requires alterations in the consumers' perceptions and usage patterns, this is the norm for technology enterprises (Moore & McKenna, 1999).

Contrary to the popular belief, being the first to bring a novel product or service to the market and subsequently invest intensively in marketing and product development is by no means a guarantee for success for technology startups. (Smagalla, 2004). Marketing a technology product requires understanding the customers and their purchasing rationale to be able to construct a relevant value proposal. Customer purchase decisions for technology startups are based on the perceived benefits for the customer, and customer adopter category, and subjective factors such as compatibility, observability, and non-complexity (Yetisen *et al.*, 2015).

Whereas the potential benefits are covered by the generic value proposal, an augmented value-proposal will have to take the diffusion of technological innovation (Figure 3.9) into account. In the groundbreaking book *Crossing the Chasm* (1999), Moore & McKenna argue that the different segments in the technology innovation diffusion curve have widely different needs and wants, rendering beliefs that a marketing message and value proposal can be continuously improved and refined, but essentially stay the same, inadequate. Rather than primarily being a function of time or adoption, the different segments in the innovation life cycle represents differentiated customer needs and wants. Moore & McKenna argue that the biggest gap (the “chasm”) exists between the early adopters, seeking a change agent, and early majority, seeking productivity improvements.

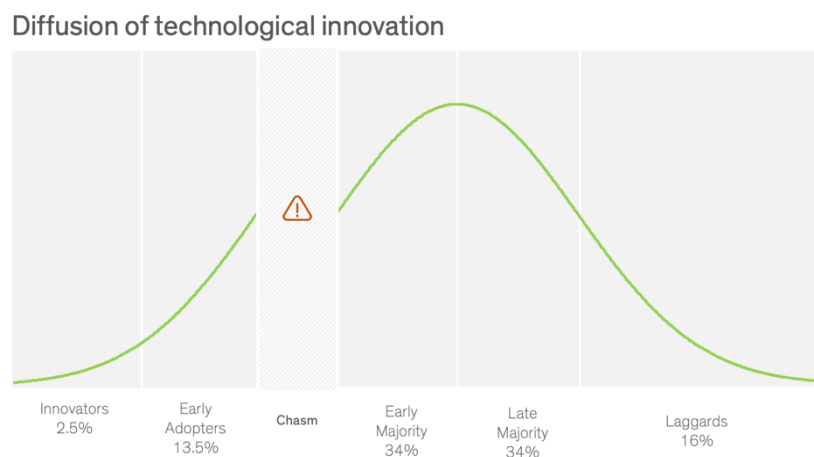


Figure 3.9 Diffusion of technological innovation (Moore & McKenna, 1999)

In order to translate into product rather than customer segment terms, the product life cycle by Kotler et al. may be used, from their fundamental work Marketing Management (Kotler & Keller, 2015). The product life cycle features four different phases - introduction, growth, maturity, and decline/extension. As Table 3.15 describes, each of the different phases in the product life cycle require different marketing objectives and strategies. The product life cycle can be studied in conjunction with the model concerning the diffusion of technological introduction. However, whereas the product life cycle is a function of time, the diffusion curve aims to visualise a distribution of consumer preferences and provisos.

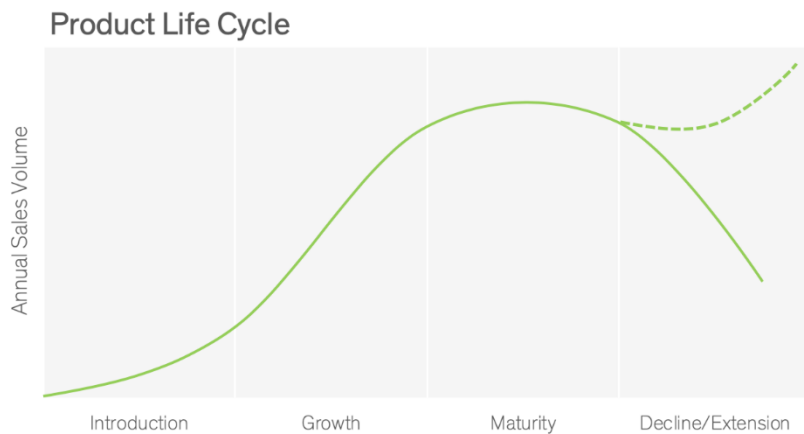


Figure 3.10 The Product Life Cycle (Kotler & Keller, 2015)

Table 3.15 Summary of PLC strategies (Kotler & Keller, 2015)

Summary of Product Life-Cycle Characteristics, Objectives, and Strategies			
	Introduction	Growth	Maturity
	Characteristics		
Sales	Low sales	Rapidly rising sales	Peak sales
Costs	High cost per customer	Average cost per customer	Low cost per customer
Profits	Negative	Rising profits	High profits
Customers	Innovators	Early adopters	Middle Majority
Competitors	Few	Growing number	Stable number beginning to decline
	Marketing Objectives		
	Create product awareness and trial	Maximise market share	Maximise profit while defending market share
	Strategies		
Product	Offer a basic product	Offer product extensions, service, warranty	Diversify brands and items models
Price	Charge cost-plus	Price to penetrate market	Price to match or best competitors
Distribution	Build selective distribution	Build intensive distribution	Build more intensive distribution
Communications	Build product awareness and trial among early adopters and dealers	Build awareness and interest in the mass market	Stress brand differences and benefits and encourage brand switching
	Decline		
			Declining sales
			Low cost per customer
			Declining profits
			Laggards
			Declining number

3.5 Theoretical Framework - elements that matter for revenue growth

The theory presented in this chapter aspired to identify and describe the determinants of revenue growth in technology startups. Three areas were identified to represent the different aspects of growth; *strategy*, *resources and capabilities*, and *value proposition*. Together, these fields explored three different questions related to growth; *How (strategy)? Who (resources and capabilities)? and What (value proposition)?* Per se, the theory section has fulfilled its purpose of providing necessary literature substance, enabling further analysis of determinants of revenue growth in the following chapters. Below follows a summary of the theoretical concepts that will be applied in the analysis.

To set the scene, chapter three began with a summary of Mr. Porter's work related to how companies can achieve success in competitive markets. He defined strategy as "deliberately choosing a different set of activities to deliver a unique mix of value", which captures these requisites in a concise, yet clear manner. In terms of revenue growth, the *Ansoff Matrix* provided four strategic alternatives; *Market Penetration*, *Market Development*, *Product Development*, *Diversification* or a combination of them. Options for executing on the strategy boiled down to organic or inorganic efforts, the latter being of less relevance given the limitations of this thesis (Figure 3.1).

An alternative way of selecting the right market for technology startups was presented in the following section. According to Mr. Blank, four different opportunities prevailed; (1) *Enter an existing market*, (2) *Create an entirely new market*, (3) *Resegment an existing market as a low-cost player*, (4) *Resegment an existing market as a niche player*. Each one required a unique set of preconditions in terms of product attributes and capabilities in order to yield a successful outcome. The combination of the Ansoff Matrix, Mr. Blank's market entry strategies and Mr. Porter's generic strategies; *differentiation*, *cost leadership and focus*, resulted in the Modified Ansoff Matrix as visualised below and thus answered the "how?" (Figure 3.3).

For the analysis of the implementation of the growth strategy in this thesis, two frameworks were selected (illustrated in Table 3.9), with additional theories from the two authors (Kotter and Blank respectively). Being a generic framework, Kotter's eight steps for implementing change is here used as a device for analysing the journey prior to the period of high growth the startup firms subsequently experienced. Once the growth has been catalysed, and the firm has entered the early majority with its product or service, the firm's actions can be compared with the four phases derived from Blank's work.

Next, the resources and capabilities section elaborated on the *resource-based view* (RBV) and concluded that a firm's *sustainable competitive advantage* (SCA) embodied the most fundamental element in determining the long-term prospect of success. A SCA was defined on the basis of difficult-to-imitate attributes of a company, acting as the primary source of superior performance and competitive advantage. In turn, the SCA constituted an important element in crafting a value proposition. In an effort to apply existing theory associated to RBV in a narrower and startup oriented context, Mr. Rangone identified three capabilities that are particularly important in SMEs; innovative capabilities, production capabilities and market management capabilities (Table 3.10).

In addition, technology startups depend to a large extent on: (1) The entrepreneurs' market knowledge i.e. how well he/she can turn a business idea into reality by tailoring a product/service to a specific need of a market/customer segment. (2) The entrepreneur's previous experience from other new ventures, which also affect (1). (3) The characteristics of the entrepreneur with respect to the 14 different character traits identified by Gartner (Table 3.11).

(4) The entrepreneur's access to financial, human and social capital, determining the ease of building and acquiring new essential resources and capabilities such as technically skilled employees and venture capital. (5) The level of innovation height, emanating from the quality and quantity of IP produced by the firm's employees or founders. (6) The match between Betz's list of ten capabilities and the capabilities present in the startup.

In order to capture exchange value, technology startups must find a lucrative match between their resources and capabilities, and customer needs. The first step of capturing the value is always to design (or accept a proposed) *value proposition*, aiming to cater to the identified segments' *willingness-to-pay*. The product or service, the integral part of the value proposition, should be configured and bundled in order to capture as much value as possible from the customer. While products and services may accommodate perceived use value by themselves, companies are increasingly exploring the possibility of *servitising* their offerings, incorporating a reciprocal relationship between provider and customer. This trend is reinforced by the societal and technological trends discussed in the introduction. Marketing a product or service in a technology arena requires differentiated techniques compared to those associated with conventional markets. High investment costs, intense competition, and uncertainties restrict the number of strategic options available for technology startups. Moreover, the product or service may affect the consumers' perceptions and daily life, which poses a threshold for customers residing outside of the *innovator* and

early adopter categories of the *Innovation adoption lifecycle curve*. The product and its levels should be configured accordingly. This summarises the question “*what?*”

To illustrate the above-mentioned factors, this study proposes a theoretical framework where both the internal factors and the interface through which they interact with customers, and the strategic direction are assessed in order to evaluate the startup’s capacity for accelerating growth. While the coloured arrows exemplify some of the concepts that are included, the model incorporates other, aforementioned, elements within (α), (β) and (γ) as well. This model, as can be studied below, takes the form of a propeller - a propeller through which the startup can propel growth.

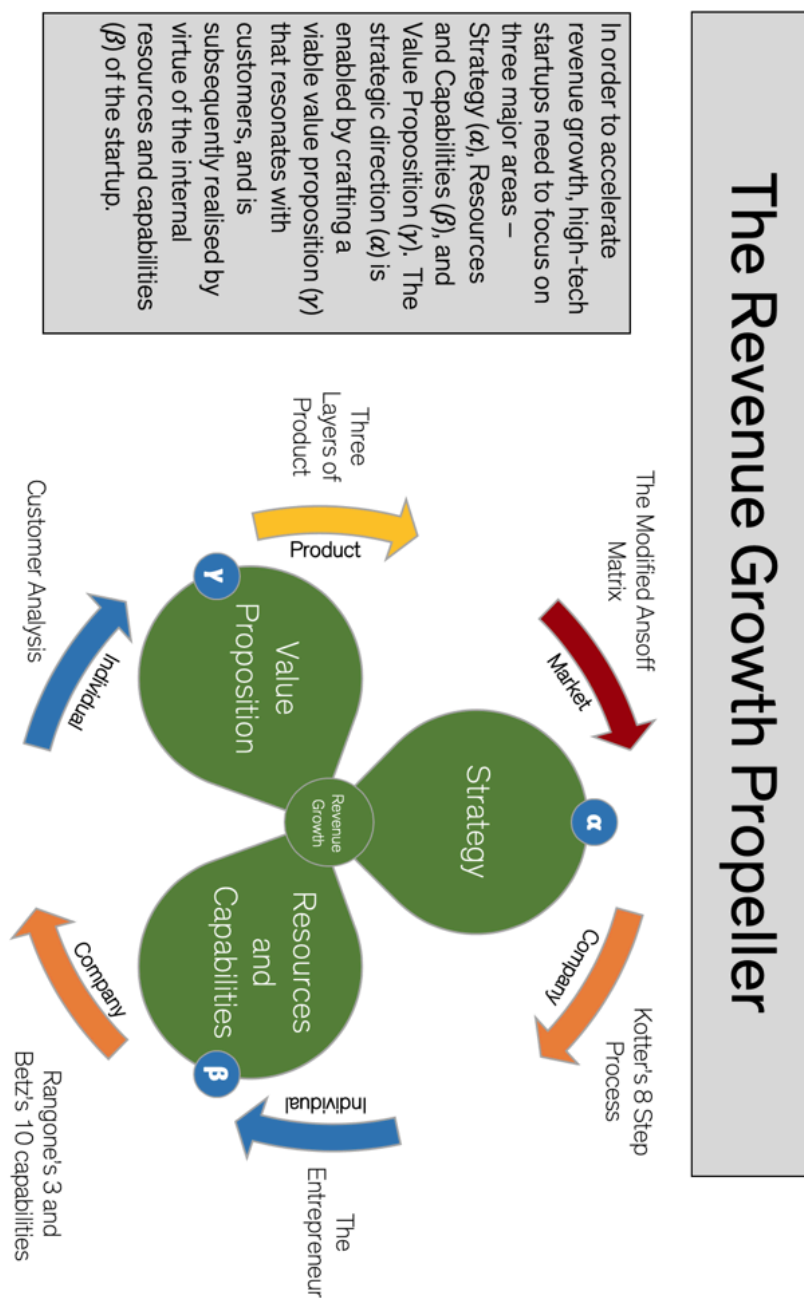


Figure 3.11 The Revenue Growth Propeller

4 Empirics

4.1 Nordiska Entreprenadsystem

4.1.1 Introduction

Nordiska Entreprenadsystem (NEAB), founded in Linköping in 2014 by Mr. Anders Jacobson, develops, markets and sells administrative systems to small and medium sized companies within the *construction-, maintenance- and contracting industry* (CMC-industry). Mr. Jacobson established his first company in 1999, also within operational systems for the CMC-industry, which he later sold in 2003. Some of the profit he made from that transaction was later used to acquire the assets and liabilities from Millnet in January 2014, which became the antecedent to NEAB. In 2018, NEAB was acquired by Monterro, enabling the founder and other shareholders to sell part of their shares (Jacobson, 2019, personal communication, 15 Mar.).

4.1.2 Financials

Table 4.1 NEAB Consolidated income statement (Retriever Business, 2019)

NEAB	2017	2016	2015	2014
Sales (mSEK)	21.3	14.5	9.2	4.7
EBITDA (mSEK)	4.3	2.6	1.1	0.5
EBIT (mSEK)	3.5	1.9	0.4	-0.1
Net Margin (%)	15.8	12.1	2.9	N/A
Number of Employees	16	12	9	7

Since the company's inception in 2013, NEAB has grown with a CAGR of 65% (Retriever Business, 2019).

4.1.3 Strategy

The construction industry in Sweden (if not globally) has been very conservative in using digital tools to facilitate administration and free up managerial resources. This has resulted in legacy systems not up to date with the highly mobile and flexible nature of today's modern construction firms. As a consequence of this, foremen, workers, and administrative personnel resort to ad-hoc spreadsheets, heaps of papers, and legacy systems with inadequate integration with resource planning systems. As a response to this, NEAB is digitising the construction industry. As of today, the company employs 26 people and has over 400 customers. Their product, NEXT, offers all features required to handle the daily administration, including complete mobile contracts. The first version of today's NEXT was built for NCC already in 1994 and has, since then developed into a mobile business system, where the purpose is to streamline the entire company's operational information flow. The business logic that NEXT offers is packaged as

a scalable web service, where the targeted customer segment is medium-sized companies with a turnover of SEK 10 to 1000 million. These prospective customers have basically the same requirements for their operational business tools as the nationwide companies, but they often lack both the expertise and resources to implement them without help. NEXT and NEAB play the role of a bridge by allowing these companies to digitalise and thereby creating the best conditions for long term growth (Jacobson, 2019, personal communication, 15 Mar.).

While most NEXT customers today consist of medium-sized companies, both smaller and larger companies are represented in the customer register. In the past year, inquiries from major companies have increased dramatically in scope and the reason is simple - virtually all major companies have older business systems such as 3L Pro, Pyramid, SoftOne, Hogia, or Entrance. These outdated systems certainly work, but they have little chance of using modern technology in the form of mobile web services or integrated portal solutions. In the future, NEAB envisions a construction- and service industry where real time monitoring of all costs will completely revolutionise the way in which construction projects are evaluated based on their potential profit (*ibid.*).

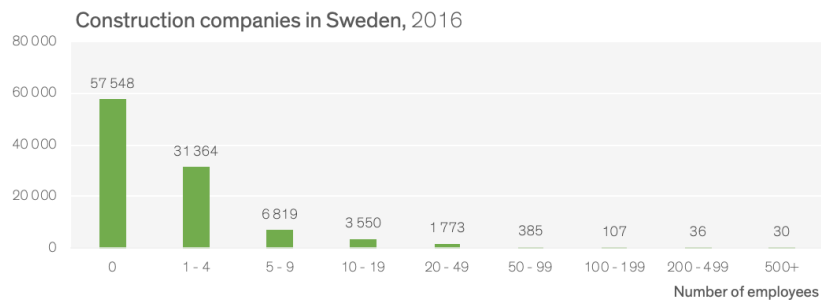


Figure 4.1 Distribution of construction companies in Sweden, 2016 (Sveriges Byggindustrier, 2019)

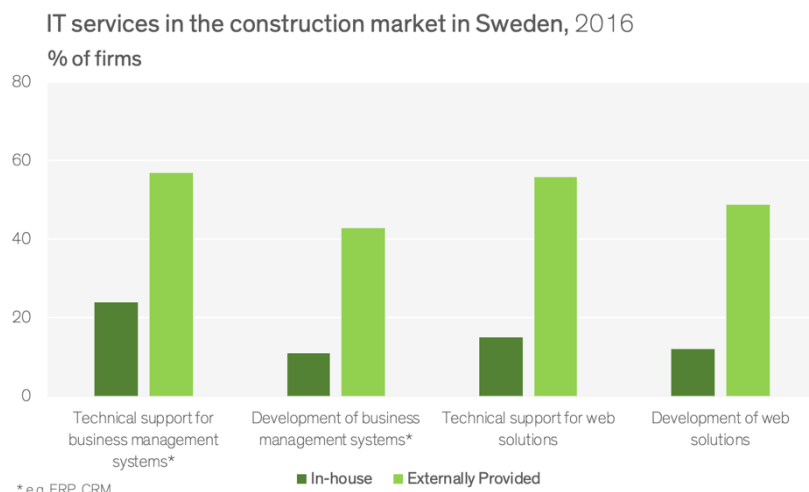


Figure 4.2 In-house vs. outsourced IT in the CMC-industry, Sweden, 2016 (SCB, 2016)

4.1.4 Resources and Capabilities

NEAB and NEXT is, to a large extent, the outcome of two persons endeavours. During the interview, Anders Jacobson, the founder of the company and until recently the major shareholder¹, emphasised the importance of his and the other co-founder, Magnus Nilsson, relationship prior to the company's establishment. The two of them had met at a few years earlier at another venture which Mr. Jacobson co-owned together with nine other entrepreneurs. He soon realised that, while many of the other co-owners paid little interest in developing the business, Mr. Nilsson had a different mindset. In addition, Mr. Jacobson soon discovered his talent for coding calling him "a genius". He built the architecture and coded the earliest version of NEXT in three weeks with nothing but Mr. Jacobson's ideas, visualised in a PowerPoint-deck he had made over a week-end. Once the company had been founded, he took on the position as NEAB's CTO, a role he shouldered with great success (Jacobson, 2019, personal communication, 15 Mar.).

At the centre of Mr. Jacobson's and Mr. Nilsson's favourable relationship is the fact that their competencies overlap to a very small degree. While Mr. Jacobson has been responsible for many of the conceptual functions around NEXT, working primarily within business development, Mr. Nilsson has taken a more concealed role, unknown to many people outside of the company. Instead, his expertise has revolved around the code itself and an equally important ability to convert Mr. Jacobson's words and ideas to a sellable product. In terms of education they differ as well. Mr. Jacobson holds an MSc in Industrial Engineering and Management with a specialisation in computer science - a degree he gives much credit to, calling it a "spot-on match with entrepreneurship". Mr. Nilsson, on the other hand, has an MSc in Computer Science (*ibid.*).

With dissimilar educational backgrounds and competencies, what united Mr. Jacobson and Mr. Nilsson was instead their mutual experience from the CMC-industry. Mr. Jacobson makes no secret about his 15-year long experience being one of most crucial factors of success in NEAB's case. In the same way, "Mr. Nilsson's has an almost unique combination of both deep operational and technical expertise", as it says on the company's website, a description that resonates well with what Mr. Jacobson has to say about his companion. Apart from Mr. Jacobson and Mr. Nilsson, the company's CEO, Lotten Tholander has also contributed, predominantly through her organisational and leadership skills. The other employees that either were part of the original eight or have joined gradually are also to credit. Their additions, however, could most likely have been

¹ Mr. Jacobson sold the majority of his shares to Monterro in January 2019

performed by other qualified personnel, of which there are several. Thus, they are not to be included in the cohort of key people who have been absolutely vital to the company (*ibid.*).

When it comes to more tangible resources, the company's office and its location has provided means of attracting and retaining employees. Contrary to many other Linköping born tech companies, which resides in a cluster six kilometres from the city centre, NEAB's office is located in the centre of Linköping at the three top floors in what used to be a restaurant and is consistently bright, modern and spacious. Going forward, Mr. Jacobson says that a key challenge for the company will be to find enough room for new employees while avoiding moving out of the current office, which would make them a less attractive employer (*ibid.*).

NEAB's most valuable resources and capabilities are closely interwoven in its key people, according to Mr. Jacobson. When asked what capabilities he wants to highlight in particular, market and industry knowledge stands out as most essential - an ability to recognise the customer need and translate that need into a product or service. That need also has to include a certain threshold for how much the customer is willing to pay, he adds. In the case of NEXT, that willingness stems from the quantifiable time that the customer saves by using the service. As an entrepreneur, you also, to some degree, have to be able to identify the right timing for launching your product. Prior to the introduction of smartphones in the marketplace, the need for a product like NEXT was equally strong - the way to do business hasn't changed much the last two decades - Mr. Jacobson explains. However, there was no sufficiently advanced platform on which to build the product, which ultimately killed the business idea. "Once the iPhone had been released, I immediately realised that it was going to revolutionise business systems in the CMC-industry. There is no industry that has such a great benefit from mobility since you, by definition, rarely visit the office". Mr. Jacobson recollects (*ibid.*).

Lastly, when listing his personal traits vital for his success, Mr. Jacobson seems to be an incarnation of the archetypical entrepreneur. Most fundamentally, he is a very competitive person. He sees his journey analogously to the one of athletes; it is as if he has trained for this moment for 20 years. Furthermore, in order to inspire others to be as competitive and to project his goals, Mr. Jacobson is also very proficient in promoting a high-energy vibe in the work environment. "It is important to retain that magical spark despite high growth and disruption", he points out. Leadership abilities aside, he is not eager to once more take the reins of a company (as opposed to being an investor and business developer). "I have done these errors in the past", he says. According to him, the CEO position is an unthankful job, and an entrepreneur sitting on more than one seat will impede success,

constrain growth, and does not adhere to the concept of a professional organisation. This is why Mr. Jacobson early on decided not to act as the company's CEO, Chairman and seller at the same time, which he did at his first company, as it soon became too overwhelming and took valuable time away from what actually added value - business and product development. Once NEAB was up and running he took the active decision to hand over the CEO role, shirking his responsibility to manage the administrative tasks and thus permitting a complete commitment to develop and improve NEXT (*ibid.*).

4.1.5 Value Proposition

NEAB's value proposition is centred on the improvement of customers' profitability by increasing mobility, structure and in-data quality which leads to significantly less administration for production managers and other administrative staff. In addition, daily, cloud-based, reporting also leads to faster invoicing and consequently an improved cash flow. By collaborating closely with their customers, NEAB makes sure that each customer requirement is addressed, and that the system is truly tailored to their specific environment. The value the SaaS-product yields for the customer stems primarily from the amount of time saved for managers, increased control, and reduced risk. NEAB has, from the very start of the venture, been acutely aware of the importance of appropriately matching the needs of the market, as well as being able to communicate the potential value to the consumers. Hence, NEAB has developed a proprietary ROI model that aids the sales force in communicating the value provided. However, Mr. Jacobson points out that there are minimal sales efforts involved; the sales department bears more similarity to an order reception desk rather than a sales force. "I can't imagine any better job than being a sales rep at NEAB. It's a constant hallelujah-atmosphere during client meetings", he adds (*ibid.*).

In order to identify the functions and processes vital to the construction industry, that the clients could be willing to pay for, Mr. Jacobson and his team has conducted over 100 pilot studies, spanning over 20 years. These studies have resulted in the discovery of six different workflows that now act as NEAB's segmentation pattern. The segmentation is used to identify the key functions for the client, and subsequently calculate the ROI for the client. The size of the client company is also acknowledged in the form of the two product configurations "Small Business" and "Project". NEAB does not charge any extra for individual functions of the software but does offer add-ons. Mr. Jacobson points out that small businesses usually find NEXT very expensive, and large businesses find it very cheap. He acknowledges that for some firms, the competing low-price (or sometimes free) services may be more appropriate, but when the construction firm reach a certain size, the unique analysis tools integrated in NEXT

become vital. But the smaller firms are nonetheless within NEAB's scope (*ibid.*).

One of the key enabling factors for the speed of NEAB's growth journey, is the outset that the product, in its standard form, is not customisable. As most of the construction firms approaching NEAB is severely lacking in their digitalising efforts and have limited experience of developing proprietary business tools, there are no preferences with aspect to technical requirements of the system, derived from previous experience of similar software. In addition, the construction market is highly homogenous in regard to the inputs and outputs of the six different workflows discussed earlier. Thus, instead of asking the customers "How does your workflow look like" or "How do you currently work" and adapting the system to their needs, NEAB is approaching the client with an off-the-shelf solution bundled with a "This is how you should work to achieve best practice"-message (*ibid.*).

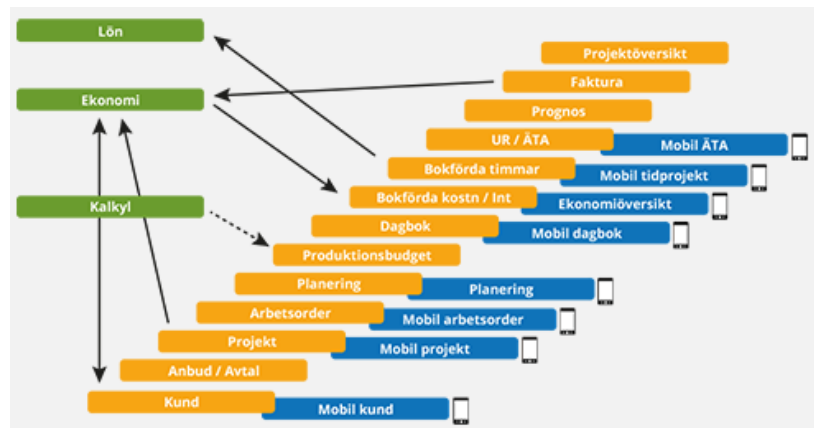


Figure 4.3 Conceptual framework of NEXT (NEAB, 2019)

In terms of competitors, Mr. Jacobson outlines one company that partly targets the same kind of customers as NEAB - Bygglet. Bygglet, founded in 2010, targets companies with 5-20 employees and is, simplified, a downscaled version of NEXT with less functions but a lower price, marketed to smaller (Jacobson, 2019, personal communication, 15 Mar.).

Table 4.2 NEAB's product configurations (Jacobson, 2019, personal communication, 15 Mar. ; NEAB, 2019).

			
	Small Business	Project	Enterprise
No of employees	1-10	(5-6)+	High
Differentiator	-	Can be expanded with additional modules	Can be integrated with advanced finance platforms

4.2 Eliq

4.2.1 Introduction

Eliq is a private firm originating from Gothenburg, Sweden, in the data analytics and IoT business and was founded in 2010 by Mr. Joakim Ottander. Aiming to pioneer intelligent energy monitoring, Eliq helps households to fully understand and manage their energy consumption. Eliq has signed partnerships with a number of utilities in Europe, including the Swedish firm Bixia AB. The product Eliq offers is twofold; analytics is produced for the benefit of the utilities, and a SaaS solution presents the usage data to the consumer. Under the hood of the software is a data model that enables Eliq, and subsequently the customer, to draw valuable insights such as maintenance needs or failure risks of individual household appliances. The data model has been developed through a machine learning algorithm that has been fed vast amount of data in the past five years; data are one of Eliq's biggest assets (Swedish Energy Agency, 2018).

4.2.2 Financials

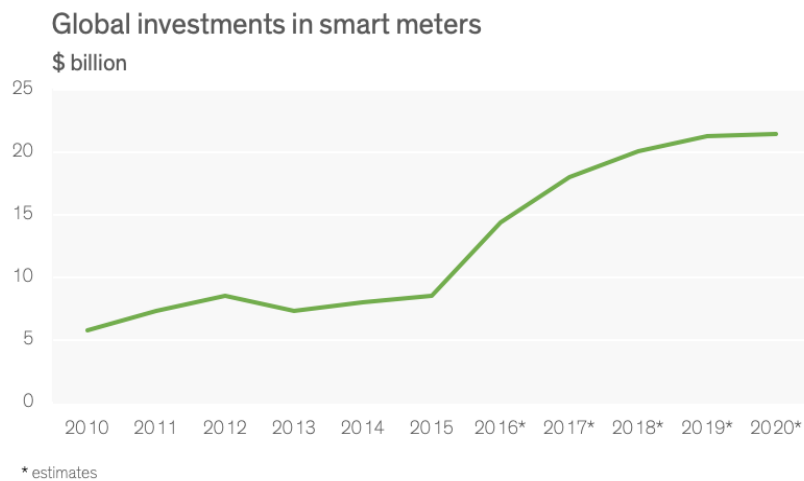
Table 4.3 Eliq consolidated income statement (Retriever Business, 2019)

Eliq	2017	2016	2015	2014	2013
Sales (mSEK)	1.7	7.0	2.2	10.6	4.1
EBITDA (mSEK)	-4.2	-1.1	-3.5	0.3	-1.9
EBIT (mSEK)	-5.2	-1.8	-6.7	-0.4	-2.5
Net Margin (%)	N/A	N/A	N/A	N/A	N/A
Number of Employees	7	5	4	4	4

Eliq's financial performance is greatly affected by its strategic redirection in 2015, where the marketing target shifted from consumers to utilities. Eliq is yet to turn a profit in their new B2B venture (Retriever Business, 2019; Botha, 2019, personal communication, 11 Mar.).

4.2.3 Strategy

When Eliq was founded in 2008 it was because of a vision to visualise electricity consumption in Swedish households and to help customers gain control over their energy bills (Botha, 2019, personal communication, 11 Mar.). During the years 2003-2009, approximately 5 million digital electricity meters were installed around Sweden as a response to new laws and regulations that limited the utilities power to adjust the energy bills of consumers in retrospect (Swedish Smartgrid, 2019). Moreover, it allowed energy producers to more accurately predict energy consumption and adapt their production accordingly. A few years later, in 2011, the Swedish government approved a proposal to participate in a programme launched in 2009, during the Copenhagen Climate Change Summit, called the International Smart Grid Action Network. The programme involved multidimensional cooperation between countries to improve and develop smart electricity grids (Regeringskansliet, 2012).



* estimates

Figure 4.4 Global investment in smart meters, 2010-2020 (Statista, 2019a)

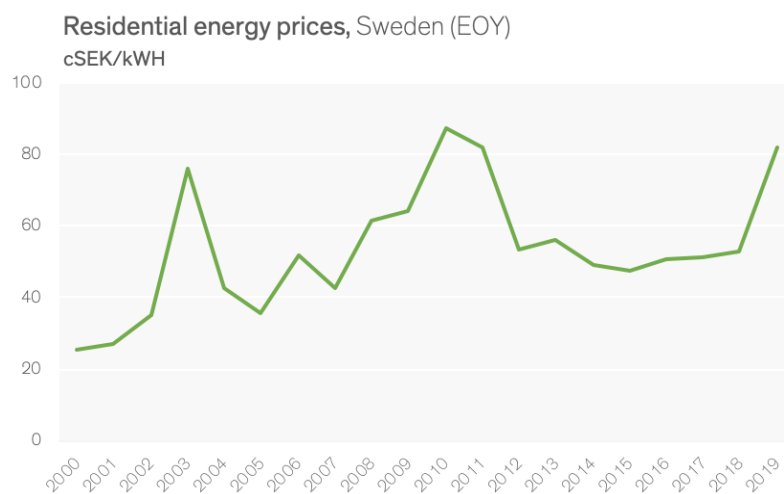


Figure 4.5 Residential energy prices in Sweden, 2000-2019 (SCB, 2019)

Eliq's mission is to make as many households as possible energy neutral with respect to energy consumption. Prior to 2015, Eliq's

strategy to realise this vision was to target households (consumers) directly by selling small gadgets that were connected to the utility meter in order to visualise energy consumption. However, as electricity rates declined and due to the commoditised nature of electricity, consumers lost interest in actively selecting the most optimal agreement for their needs. At the same time, the value proposition development had become stagnant at utility companies; the demand for their services was unlikely to recede, and no apparent way to differentiate the product was present. In response to this predicament, the founders of Eliq realised that there existed an untapped potential in marketing the solution to the intermediary; the utilities. In 2015, the company was transformed and changed its name to Eliq (previously Exibea). Today, Eliq is underway to reach their vision by helping utilities digitalise and transform their product offering from electricity to a broader spectrum of energy services. The company offers an engagement platform that helps energy consumers understand his/her consumption and control it by collecting and analysing energy-related data. Eliq then develops customer interfaces where these data are displayed to the customer and offers the opportunity to connect support services and other add-on products in order to lower consumption. From the 20-30 thousand customers the company served prior to 2015, they now have signed agreements with several utilities to reach over one million households in Europe (Botha, 2019, personal communication, 11 Mar.).

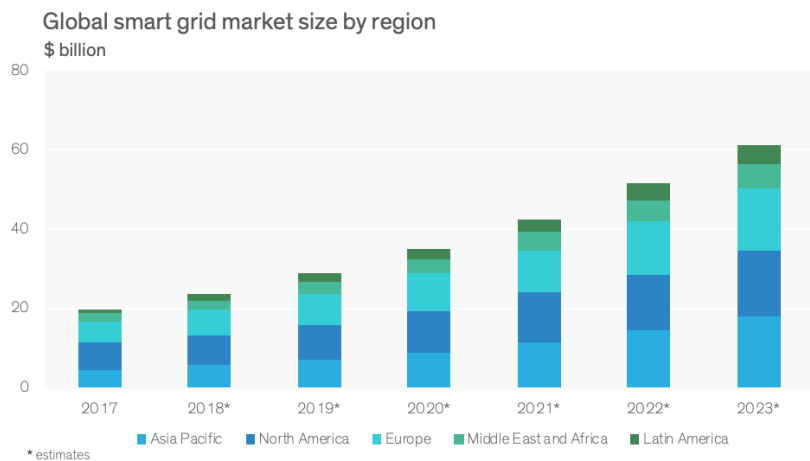


Figure 4.6 Global smart grid market size by region, 2017-2023 (Statista, 2019b)

One of the key factors to enable Eliq’s product was the transition to smart grids in Sweden that was implemented in 2010. Without smart grids and their possibilities to run applications on the utility network, Eliq’s product is impossible to install and use. The technological development in the utility infrastructure has spawned several new ventures, such as the UK-based startup Open Utility, which enables consumers to procure and sell energy via peer-to-peer technology (Botha, 2019, personal communication, 11 Mar.).

The market for home energy management systems is expected to grow with a CAGR of 23.3% until 2025 and reach a market value of 7.6 \$ bn (Frost & Sullivan, 2019). For Sweden, this would translate into a market value of 94 \$ mn, using current residential electricity consumption as a proxy². Eliq is currently able to reach 3,2% of the households in Sweden, as the agreement with Bixia AB enables Eliq to deploy its platform to Bixia's 150 000 households. It should be noted however, that it is unlikely that all households connected to Bixia are using the platform. The actual percentage is likely to be much lower.

4.2.4 Resources and Capabilities

Throughout Eliq's startup journey there has been a relatively small variation with respect to the resources and capabilities that the firms have had in its possession and strived to acquire. According to Mr. Joakim Botha, Head of Sales and Marketing and co-founder, Eliq's most vital resource is the team of 15 people who work at the Gothenburg office in addition to their advisors. The appointment of advisors in Eliq's target markets is a fairly new initiative in an effort to gain traction on the sales process and bring about confidence to prospective customers. In particular, he insists, the five co-founders have played a pivotal role in transforming the company from its early days to where it stands now. They were responsible for the development of the software that today is the core of the engagement platform, and they realised that the company had to change its B2C orientation in favour of B2B. In fact, for a long time they constituted Eliq's only employees. Per consequence, they have been exposed to the changing tides of the energy utility engagement industry much longer than many of the other employees, resulting in both a wide and deep knowledge base that sparked the recent reorientation. At the forefront of enabling this shift also lies Eliq's diversity and versatile background of its five co-founders, where gaps in competencies of one team member to a large extent have been bridged by another and vice versa.

Mr. Botha personifies these qualities in his previous experiences. His academic foundation consists of a Bachelor's degree in mechanical engineering, followed by a Master's degree in industrial engineering at Chalmers School of Entrepreneurship. In addition to this, he has studied various courses in economics in the US, and attended an exchange programme in Tromsø, Norway. Prior to his engagement in Eliq, he did not have any previous experience of the energy utility market, nor any extensive experience of running startups. He founded

² Residential electricity consumption is 6 mteo (Sweden <https://www.ekonomifakta.se/fakta/energi/energibalans-i-sverige/elanvandning/>) and 488 mteo (Worldwide <https://www.iea.org/statistics/kwes/consumption/>)

Globesar, a commercial satellite service that ran for over four years, but it did not meet its growth targets and was subsequently liquidated. Notwithstanding, Mr. Botha enjoyed an extensive network at the time of the inception of Eliq, but not within the utility market. This network is the result of his years spent within academia, the startup scene, and his experience from business development and sales. When probed into his personal motivation, Mr. Botha stressed the importance of having a good time whilst making a difference. “As 70% of your life consists of work, it better be something you care about”, he points out.

Eliq’s establishment would never have been possible without the venture capital that the company so far has raised in its aspiration to one day generate enough cash flow to finance its expansion. Since 2010, the company has issued bonds and stocks of approximately 60 SEK mn to external investors, while some of the money has come from the founders themselves. The co-founders network functioned as the primary channel between potential investors and the access to capital. In the last venture round, a network of angel investors was key to secure the new funding of 30 SEK mn.

Apart from the founders, employees and their network, Eliq has benefitted from its reputation as a well-recognised employer and clean-tech signature. Judging by Eliq’s website and Mr. Botha’s own words, the company puts great emphasis on building and sustaining the culture which has been Eliq’s DNA from the start. The culture has been key throughout the sometimes more challenging times of the company’s history, serving as a safe haven and unifying force that have kept the team on a united path. Lately, when the company began recruiting new employees, their culture has come in to play when enticing, many times foreign, candidates to come work for them. According to Mr. Botha, some of the company’s traction should also be credited to the recent hype around the startup-industry in general and clean tech industry in particular. Most likely, these trends will continue to affect where the world’s talent will want to work as environmental concerns are becoming more apparent. Since Eliq now plans to scale up significantly and ramp up their recruitment efforts, culture, brand and reputation will become increasingly important in order to secure the need of talent going forward.

Capabilities-wise, Mr. Botha pays greatest homage, again, to Eliq’s co-founders and their respective qualities, where the wide array of knowledge, ranging from software engineering and product development to sales and marketing, has allowed the team to access many different abilities. Being a technology startup and a software company, Eliq relies vastly upon the technical skills of its founders and employees i.e. the ability to create new solutions and algorithms to develop its platform. The company protects its IP through copyright and robust cyber-security systems.

Other essential traits of the co-founders include high-levels of ambition and motivation - a rock-solid belief in the business idea and the company's long-term vision. Mr. Botha also highlights the smart way of working, which has permeated the fashion in which the founders have carried out their daily duties. This smart way means that redundant activities are kept to a minimum while at the same time ensuring as little overlap as possible among tasks. All in all, these core-capabilities have changed little over the years, and despite the B2B conversion in 2015 many of the capabilities that were valued initially are still equally important today. The main difference is rather the specific software features that were incorporated in the two different platforms where, earlier, a narrower focus on energy-savings has given way to invoicing and other, broader functions that the company's B2B customers now expect. Finally, when probed for the ambiguity of staying relevant in the marketplace, Mr. Botha emphasises the relevance of keeping an ear to the ground, meeting the utilities' representatives regularly and listen to their needs and concerns. He adds that many of these companies worry even more than Eliq about becoming obsolete themselves - and rightfully so. The industry is undergoing rapid change, and not far from now, energy providers will have lost part of their role of distributing electricity as more households and companies are becoming self-sustaining. To handle this uncertainty, Eliq partners with their customers and help them navigate through the treacherous waters of industry change. This mutual relationship benefits both parties as it helps Eliq stay relevant while the utilities get a trusted advisor.

4.2.5 Value Proposition

As previously mentioned, Eliq implemented major changes to their marketing strategy post 2015. Instead of solely relying on the value for the consumer, Eliq redesigned the value proposition with the utilities in mind. This shift rendered a much higher willingness-to-pay due to three reasons. Firstly, as one of the major cost drivers in the industry is customer churn (customers switching providers), any prospect to counteract it with lock-in mechanism is of high interest for the utilities. The lock-in consists of the customers seeing the value of the utility in being a partner for decreasing energy usage with the white label platform from Eliq. Secondly, as the relation between utilities and consumers could be enhanced with the system, the opportunities to increase cross selling of additional products and services increased accordingly. Finally, the original value for the consumer still persists, resulting in a higher WTP towards the utility. In short, instead of only tapping into the lastly mentioned value potential, Eliq now enjoys the compound WTP from both utilities and consumers, with a much more homogenous market to focus on (utilities instead of consumers). Eliq has some basic qualification criteria for their customers, such as

revenue potential and number of consumers, but does not currently utilise any segmentation strategy within the utility market. Factors that could evolve into segmentation logic are size and smart tech maturity, but neither is implemented as of today.

In order to measure the WTP, Eliq quantified the cost-to-serve with traditional systems and investigated all aspects of the utility-consumer interactions. As the white-label system both reduces the number of calls to customer service and physical invoices, as well as reduces churn, this was quantified; ROI for the utilities could be estimated to up to several hundred percent. This naturally has facilitated sales and communication with the utilities, but Eliq did not take action on the WTP data when designing the product. This is an area they are starting to investigate now; how functions can be bundled, which additional services to develop, and what functions are to be viewed as core. Eliq has not encountered any notable inertia when marketing the technology solution to their potential customers. The targeted companies are by-the-book laggards, but this stems foremost from their inefficiency in decision-making rather than an aversion to new solutions or an intentional strategy. The decision makers in the companies usually want to see other actors succeed with a new solution before they act. However, new contestants entering the market are in some instances “born digital” and have potential to acutely disrupt the energy market. This can likely affect Eliq’s business model.

4.3 CellaVision

4.3.1 Introduction

In the late 90’s, Mr. Christer Fåhraeus laid out his vision for CellaVision, the company posed to revolutionise a process that only had experienced incremental changes during the last centuries. He made his case in front of highly sceptic, but nonetheless intrigued laboratory professionals. The idea was based on the prospect of using computational power and artificial neural networks to identify and classify cells in blood samples. Twenty years later, CellaVision has captured 18% of the target market, defined as large haematology labs. Based in Lund, Sweden, it is the epitome of a successful biotech startup fathered from the highly academic setting Lund provides (Simonsson, 2018).

4.3.2 Financials

Table 4.4 CellaVision consolidated income statement (Retriever Business, 2019)

CellaVision	2017	2016	2015	2014	2013
Sales (mSEK)	309.3	265.0	239.4	216.9	179.9
EBITDA (mSEK)	99.3	81.1	73.0	55.6	33.8
EBIT (mSEK)	90.9	74.2	65.5	42.8	25.9
Net Margin (%)	29.2	28.6	27.4	20.0	13.7
Number of Employees	92	79	73	68	67

4.3.3 Strategy

As Mr. Fåhraeus prerequisite for founding a company is deeply embedded in the technology height and uniqueness of the hypothesised product or service, the consequence often is that it never has been done before. In turn, this means that there is no existent market. CellaVision is no exception. When Mr. Fåhraeus first uncovered the process of blood microscopy and subsequently came up with the idea of creating an automated process using image recognition to get the job done in 1994, he was, however, not among the first to do so. Already in the period from 1974 to 1981, a number of similar instruments were launched within haematology. These instruments relied on the same concept as CellaVision's first product, the DiffMaster Octavias: A microscope, a camera and a computer with smart software. What they didn't have was access to computer power, which was essential to achieve any kind of efficient image analysis. Consequently, the commercial success failed to arrive and the companies that developed them were forced to give way to simpler, but more reliable, technology (Simonsson, 2018).

A few years later, in 1995, an American company called Intelligent Medical Imaging Inc. (IMI) signed a marketing agreement with Coulter Inc., which had been the leading haematology company for decades. IMI had developed a similar product to the DiffMaster, the MICRO21, which Mr. Fåhraeus, at the time, was unaware of. He later dismissed the MICRO21 as too large, too expensive and having too poor image quality to become a serious threat. However, this did not stop CellaVision from later acquiring the company in 2001, as a way of gaining access to the American market. Despite Mr. Fåhraeus scepticism, IMI had a completed machine on a large market and a contract with the giant Coulter Inc. (Simonsson, 2018).

4.3.4 Resources and capabilities

In most entrepreneurial undertakings, the collective accomplishments of the co-founders determine the likelihood of success. What one may lack in terms of technical and innovation skills can be compensated for by other members of the team, who might not be as good marketers or leaders, for example. Over time, these skills develop, merge and

hopefully propel towards a united vision of what the ultimate state of the company should look like. With the right timing, product and a bit of luck some startups reach that goal, while the vast majority often fails along the way. Mr. Fåhraeus, having either founded or co-founded five to ten companies over the past 20 years of which one - CellaVision - have reached that envisioned state, is somehow the embodiment of an entrepreneur who masters all indispensable skills. Needless to say, Mr. Fåhraeus himself has often been his companies' most central resource during their startup phase. His technical skills in particular has served an important purpose of materialising his ideas; be it automating haematology analysis or recognising biometric patterns in new, ground-breaking, ways. Innovation height has thus, according to Mr. Fåhraeus, had a profound impact on the criteria on which he set out to find the various ventures in the first place. True to his own proclamation about the importance of technical proficiency, Mr. Fåhraeus boasts an ample collection of academic achievements; 300 ECTS in mathematics, physics and engineering physics completed in two years' time (normally five), five terms at Medical School, a M.Sc. in Bioengineering and a Ph.D. in Neuroscience. (Fåhraeus, 2019, personal communication, 19 Mar.).

With such a large set of wide and deep expertise in addition to the complexity of the technology behind his businesses, there is little surprise to the fact that he calls for only the best engineers to work for him. Finding such talent is no easy task at all times, even for a man with Mr. Fåhraeus influence. Fortunately, in his case, Mr. Fåhraeus' extensive network has allowed him to access some of the brightest talent in Sweden. Being able to cherry pick engineers from his earlier enterprises as well as from the academic arena, enabled through his connections to the Faculty of Engineering at Lund University, has facilitated recruitment, he says. "Even though you have an idea, it may take upwards of 30 man-years to productify that idea, something you cannot achieve alone. And to solve the hardest kinds of problems that may appear along the way - you need the best of the best. One hundred mediocre engineers wouldn't beat the best one when you come across those types of problems. The leverage you get from the most skilled engineers is far greater in startups where technical complexity is the bread and butter of the day to day work, in comparison to other, slightly less complex businesses. The distinction is infinite", Mr. Fåhraeus explains. Lately, Mr. Fåhraeus has also leveraged his network for other purposes. "The difference between founding Flatfrog and CellaVision was monumental in terms of fundraising. The time it took was significantly shorter and the whole experience a lot smoother" (*ibid.*).

Notwithstanding, when Mr. Fåhraeus was fresh out of college, he did not have the extensive network, nor any experience from writing business plans, grant applications, or patent applications. In order to

attract funding, write adequate business plans, and design valid patents, he needed an entity that could help him with these non-academic aspects of business. Enter EnPeCe, a consultancy based in IDEON, Lund. EnPeCe proved invaluable for CellaVision in its early years, providing guidance and business acumen. Even if EnPeCe was acutely aware of their importance for CellaVision, and invoiced accordingly, their part in building the CellaVision story cannot be underestimated. In terms of funding, CellaVision attracted the interest of a diverse group of investors, ranging from biotech experts with clinical experience, to senior investors spawned from industrial communities with expert knowledge in mining engineering and metallurgy. Many of these investors did not have any medical experience, but they nonetheless knew how to navigate the commercial world, and how to create profitable companies (Simonsson, 2018).

Imperative for CellaVision's research prior to releasing a commercial product, was the possibility to hire graduate students as voluntary workers (more often than not unpaid). These formed the technical core with aspect to the programming of the artificial neural network (*ibid.*).

Many of the innovations, more than 50 patent families, across the companies Mr. Fåhraeus has been involved in, he has discovered himself, while some have been the outcome of other engineers in his entourage. Altogether, CellaVision, Flatfrog, Precise Biometrics and Anoto have relied immensely upon patents with some slight variations between software and hardware. Software has multiple dimensions and there are many different ways to solve the same problem, which in the end makes it harder to patent. Hardware, however, is more straightforward, essentially a list of specifications, and without patents, companies are doomed to be outrun by their Asian counterparts. Building a strong brand can potentially offset the importance of IP, Mr. Fåhraeus admits, and for internet companies like VOI and iZettle "no one cares about patents" (Fåhraeus, 2019, personal communication, 19 Mar.).

When probed for the importance of leadership and the apprehension of letting engineers work independently without too much involvement from himself, he says that it's rarely a problem. On the contrary, it's often an appreciated element to have someone's opinion when working on a solution to a difficult problem. Both Microsoft and Apple are good examples of companies that have become immensely successful, thanks to their leaders, Bill Gates and Steve Jobs, habit of intervening in the development of a product. The notion that the entrepreneur, the innovator, should be replaced by an experienced CEO is, many times, the only viable alternative when he or she lacks the organisational capabilities required to lead a startup through uncharted terrain. However, when there is a match between vision, innovative talent and leadership abilities - only the sky's the limit. This

is the case for H&M, IKEA, Oracle, Apple and Microsoft, companies who have had the same CEO and founder for decades. What matters is not necessarily how socially versed these companies' leaders are (many argue that Steve Jobs was straightforward malicious) but how well and quickly they make the right decisions. Ironically, many management- and headhunting firms are of the opposite opinion, adhering first and foremost to a potential CEO's social competence. What they don't recognise is that there is a higher risk for a social individual to lie face down when met with resistance from colleagues or the board, for instance. Even though his or her solution might have been better in the first place, they tend to give in under pressure. Mr. Fåhraeus' point is that the interference of a CEO is only a good thing if he or she is intelligent enough and understands what's best for the company in the long run (*ibid.*). Despite Mr. Fåhraeus' appreciation of letting the entrepreneur take on the long-term leadership role of a startup, CellaVision is excluded from the cohort of IKEA, Apple and the others. In 1998, he resigned as the company's CEO and paved the way for Ms. Yvonne Mårtensson to transform CellaVision from a startup to a company with a sellable product and proper managerial systems (Simonsson, 2018). Another reason why she joined can be attributed to Mr. Fåhraeus' engagement in Anoto, one of his other ventures, and the difficulty to commit 100% to CellaVision. After his official withdrawal, he continued to allocate 50% of his time to CellaVision, a setup which had been agreed upon by the then management and board (Fåhraeus, 2019, personal communication, 19 Mar.). In a more recent development, in 2015, Mr. Zlatko Rihter superseded Ms. Mårtensson in order to diversify CellaVision's product portfolio and explore opportunities to use the company's technology in other fields or industries. "It's like driving a car: you can only drive so fast using the first gear, then you need to gear up", he commented when probed for his priorities as the new leader of the company (Nilsson, 2015). As he highlighted in the annual report from 2018, the company continues to focus on five focus areas to sustain a revenue growth > 15% during the coming years; geographical expansion, segment expansion, unique innovation, improved supply chain and developed partnerships (CellaVision, 2018)

Given all his success, a legitimate question to man with Mr. Fåhraeus reputation would be what factors that drive his tireless endeavours towards innovating and founding new ventures - a question that to him, almost seem as complex as his latest dissertation. The answer is ambiguous, Mr. Fåhraeus asserts, and has numerous components. One is his competitive spirit and another, his curiosity. "If I come across an area I get really interested in, I tend to focus very hard on that for some time until I move on to the next thing I can concentrate on", he says. He also credits his rebellious and risk-taking qualities. "One of the reasons I knew I would like the pharmaceutical industry was the absence of cowboys - people who dared challenge the establishment

and do things in a different way. To put it another way; I'm the shark and the others - shark snacks" board (Fåhraeus, 2019, personal communication, 19 Mar.).

4.3.5 Value Proposition

Upon starting his journey towards building his first venture in the technology market, Mr. Fåhraeus had one major precondition; it has to be completely unique, and it has to be unbelievably hard to do - otherwise there are many others that will do the same. CellaVision, being the first firm listed on the Stockholm Stock Exchange to implement AI to bring value to its customers, fulfilled this criterion by a wide margin. However, Mr. Fåhraeus had to pay the price for bringing a unique product to the market; the market was non-existent. Usually, there is a product-market fit resembling the one that your new venture is aspiring to adhere to. With CellaVision, all possible combinations of market segments, value chain positioning, business model, and monetisation strategies were possible candidates for enabling long term growth. In this case, one of the most important organisational features is to be perceptive and adaptable, and acknowledge that many different strategies may be appropriate, and their ultimate success in delivering long-term growth may stem from factors not yet discovered. Analogously, CellaVision has experienced several shifts in their business- and revenue model. One of the major choices made was to market the system indirectly, through the systems integrators, which affected the whole operation, from product development to sales. CellaVision only accounts for 10% of the value sold to a haematology lab, which made the prospect of instituting a full-scale salesforce impossible (Fåhraeus, 2019, personal communication, 19 Mar.). The monetisation model was also completely transformed, resulting in a 90% drop in projected revenues (Simonsson, 2018). The basic idea was to supply the disposable cuvettes that were fed into the system and enjoy a high mark-up. However, the technical solution accompanied to the monetisation model was bleeding resources severely, leading to the inevitable plug-pulling by Mr. Fåhraeus (Fåhraeus, 2019, personal communication, 19 Mar.).

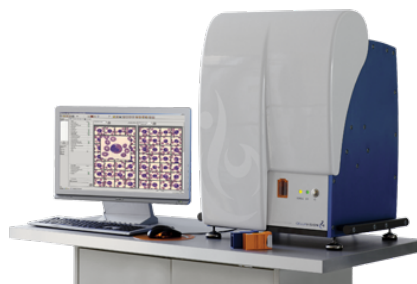


Figure 4.7 DM 1200 (CellaVision, 2019)

CellaVision provides an opportunity for haematology labs to digitise their cell identification and classification processes, which is undertaken manually for 88% of the 15 000 labs identified by CellaVision as potential customers. The automated process enables labs to centralise blood analysis, and improve efficiency, accuracy, and quality (Cellavision #Sitdown, 2015). The system is productised in the form of a hardware and software solution, where the software is the epitome on which the company was founded. Under the lead of Mr. Fåhraeus, CellaVision conducted extensive research, using avant-garde technology such as machine learning and artificial neural networks in order to create the first version of the product (Fåhraeus, 2019, personal communication, 19 Mar.). CellaVision also offers software dedicated to examining and studying the identified cells, and IoT solutions that enables larger labs to collaborate between geographical locations. Additional products offered by CellaVision includes a mobile app, and a software for evaluating employees' proficiency in identifying cells manually (CellaVision, 2019).

CellaVision mainly classifies its customers as human-haematology and animal-haematology. The latter segment is a relatively new venture incorporating the fast-growing veterinary haematology field; the market for veterinary haematology is expected to grow 12% CAGR as a contrast to the human counterpart, which is expected to grow by a mere 2% CAGR. As the underlying technology for identifying cells residing in felines and canines does not differ significantly from that associated with human haematology, CellaVision has seized the opportunity to capitalise on the increasing willingness-to-pay of pet owners. The human-haematology segment can further be dissected into small labs and large labs; the 15 000 large labs are the main scope for CellaVision. The smaller labs do not have a need for a high-volume blood analysis solution. However, CellaVision is planning to enter this segment with a smaller solution, and a significant (-70%) reduction in price. (CellaVision #Sitdown, 2015)

Mr. Fåhraeus has founded several startups, ranging from pharmaceuticals to technology fingerprint readers. One of the more recent ventures is Flatfrog, a firm dedicated to produce technology multi-touch screens primarily for office spaces. Flatfrog has experienced a period of tremendous growth, but this was not the outlook early on in its history. The technology behind the touchscreens was primarily developed for large screens, but we found that the product was more appropriate for laptops, and the product was adapted to cater to the requirements of laptop producers. However, the competition was fierce and Flatfrog was unable to compete successfully with the larger firms. Instead, the decision to focus on the laptop market was reverted, and focus was instead placed in rectifying the issues competing technology in the large screen market had and

partake in the high growth rate (Fåhraeus, 2019, personal communication, 19 Mar.).

Generalising on the above takeaways, Mr. Fåhraeus points to the importance of incorporating the customer (or a viable customer candidate) from day one. This mind-set will enable the entrepreneur to develop a testable product hypothesis, rather than a vacuum-spawned technology that may be incompatible with the product-market fit. The product hypothesis should also be developed in conjunction with a physical (or digital) mock-up of the product, if possible. When developing a technology product that is the first of its kind, it is important to be malleable with aspect to the definition of the product. It may have to be altered depending on what the new technology. As with the advent of the automobile, end users and product owners may not be able to comprehend the true value of the product due to the novelty of the technology. As time progress, and the product-market fit is more clearly defined, the power may be shifted from the engineers to the marketers. However, Mr. Fåhraeus underscores the crucial role marketers, business developers, and salesmen play early on in a startup venture. As mentioned before, a testable product hypothesis is needed to avoid developing technology that is disconnected from market needs (Fåhraeus, 2019, personal communication, 19 Mar.).

5 Analysis

5.1 Nordiska Entreprenadsystem

5.1.1 Assessing the market entry choice

According to Blank, startups are faced with four different alternatives, derived from the Ansoff Matrix, when choosing which market to compete in. Two of these alternatives, resegment an existing market as a low cost or niche player, can be traced back to Mr. Porter's generic strategies - differentiation and cost leadership. The best option is highly dependent on what incumbents, if there are any, offer in the specific market as well as the nature of the product or service that the startup offers.

The first case company, NEAB, entered the market for operational systems within the CMC-industry in January of 2014 in conjunction with the establishment of the company. Their entrance represented a company who entered an existing market with a non-focus strategy.

In 2014, the vast majority of construction companies in Sweden relied on legacy systems such as Excel as a tool for project management and still does to a large extent. While Mr. Jacobson, allegedly, identified the need and the opportunity to develop a cloud-based solution to improve the current way of managing projects already in 2009, Bygglet became the first firm to launch a product in 2010. Thereby, Bygglet established their position as the pioneer in the market for cloud-based project management services aimed at SMEs in the Swedish CMC-industry.

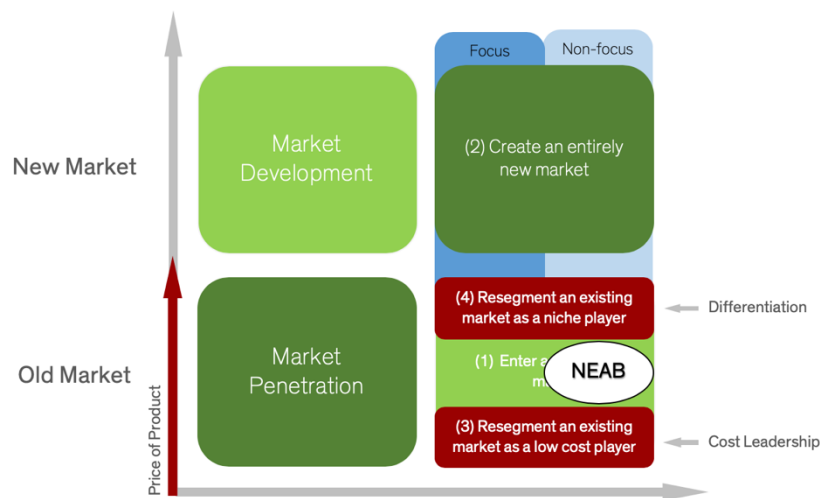


Figure 5.1 NEAB's position in the Modified Ansoff Matrix

Thus, in order to legitimise the *raison d'être* of NEAB, there had to be something about NEXT that was superior to Bygglet's product - e.g. features that got the job done faster or more accurately. Most assuredly, it turned out that NEXT did offer something better and different than Bygglet as customers growth soon followed. What they, the customers, liked about the product was NEXT's more comprehensive palette of add-on services, analytics tools, the integration with all major finance systems, as well as its calendar interface. The more advanced features NEXT offered did, however, command a higher price that many of the smallest companies were unwilling to pay. In one way, this meant that NEAB resegmented an existing market by introducing a niche product aimed at larger companies with deeper pockets. In conformity with Mr. Porter's *differentiation*, NEXT was perceived industrywide as being unique, primarily through its usability and inclusion of all essential workflows. As NEAB and Bygglet's target market overlaps to a large extent, however, it is contradictory to argue that NEXT was launched for a specific niche. Today, their combined scope includes some 40 000 companies, currently using legacy system providers. Given that the two companies currently claim 1% and 4,5% of the market for cloud-based project management services respectively, there could yet be ample opportunity for both organisations to grow.

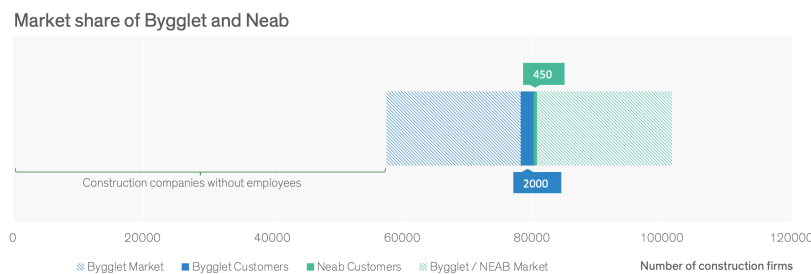


Figure 5.2 Estimated market share of Bygglet and NEAB as of 2019

5.1.2 Breaking down the product offering

For NEXT, the core benefits are the increased efficiency, reduced risk, and improved control its service brings to the customers. These aspects are associated with large cost savings at the client companies, in the form of reallocation of managerial resources and a reduction of time-consuming rectifications of data incidents. NEAB discovered this opportunity by conducting thorough studies in the workflows of the customers, and subsequently calculated the potential savings for each customer segment. This has enabled them to adapt the pricing structure to reflect the different WTP in all segments, and to leave no money on the table. The actual product consists of the SaaS-solution that digitises processes. Beside the actual product, NEAB also offers consulting, technical support, and add-on modules. NEAB utilises a subscription-based pricing, which is a core element in the

servitisation of the product. NEAB charges a monthly fee for the service, its size depending on the subscribed product and the additional module chosen. In the following figure, the three levels of product is depicted in a tabular format to enhance readability.

Three levels of product	
NEAB	
Core Benefit	Increased efficiency
	Reduced risk
	Improved control
Actual Product	SaaS-solution that digitalises processes
Augmented Product	Consulting
	Technical support
	Consulting Technical support Add-on services

Figure 5.3 Break-down of NEAB's product offerings

The product offering is configured in three tiers, where a “Small Business” package only includes the SaaS-solution without any business intelligence tools. The larger configuration, “Project” can be amended with analysis tools that can aid larger firms run analytics on the performance on their operations. The “Enterprise” system offers full integration with finance software such as Visma, IFS etc. This setup effectively renders the analytic tools and finance integration as filler components, as they do not bring any value by themselves, but can be used in conjunction with the SaaS-solution for clients opting for the larger configuration. As for the augmented product, NEAB has been careful not to focus on the consulting practice, since this would drain resources from the core business, and contradict the one-size-fits-all value proposition. If advisory service would be bundled with the product, then the growth of the firm would be severely hampered, and it could potentially act as a threshold for smaller firms unwilling to pay for consulting services. However, the consulting offering is a key enabler for reaching some larger firms, and therefore is offered outside of the product configuration.

High	Expected Adoption	Fillers	Leaders
		Analysis Tools	NEXT SaaS
		Finance integration	
Low	Expected Adoption	Killers	Addons
		Advisory	Additional Modules
Perceived Value			
		Low	High

Figure 5.4 NEAB's offering – perc. value vs. exp. adoption

In order to evaluate where NEXT is positioned on the product life cycle, the income statement, market characteristics, and strategies of NEAB can be investigated. As the company is experiencing soaring sales, a sensible hypothesis is to classify its current phase as *growth*. This hypothesis is further underpinned by the decreasing cost per customer, the growing number of competitors, and their current objective of maximising market share.

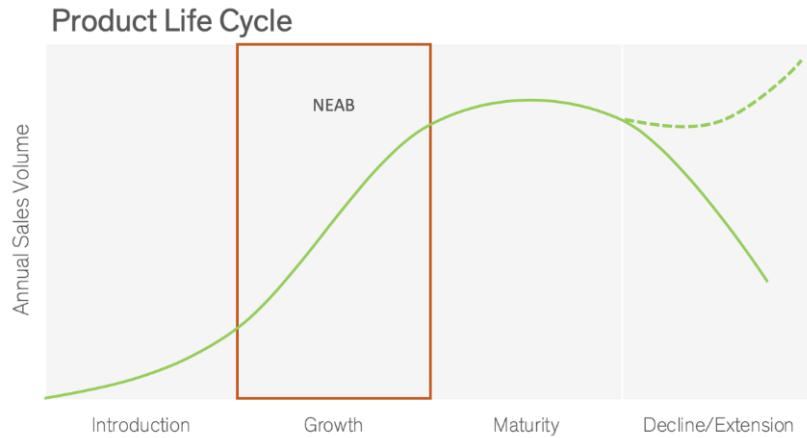


Figure 5.5 NEAB's position in the product life cycle

The customer type currently attracted by NEAB's value proposition can be identified by quantitative reasoning. As one CMC firm denotes one customer, the total number of prospective customers can be estimated to the current scope of Bygglet and NEAB. As the combined share of captured customers amounts to ~ 5%, the customers currently pursued by the two firms can be identified as *early adopters*.

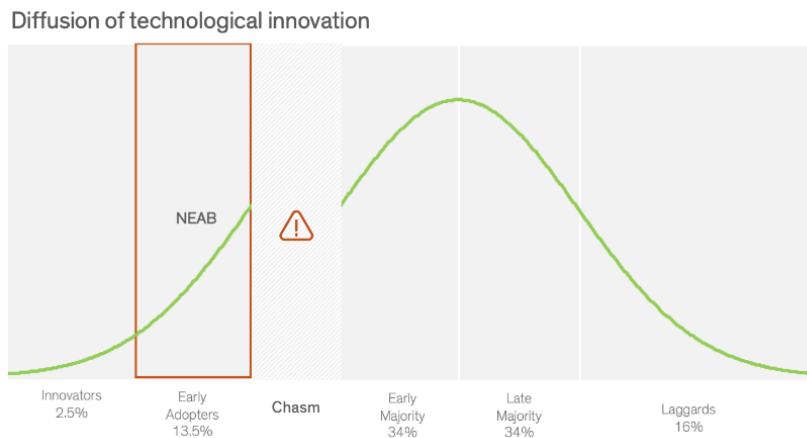


Figure 5.6 NEAB's customers' position on the technological diffusion curve

5.1.3 Establishing the organisation

NEAB's journey is in many aspects the journey of Mr. Anders Jacobson, together with his main facilitator Mr. Magnus Nilsson, responsible for the technical development. Prior to developing the

service, Mr. Jacobson created a sense of urgency by pointing to the vast amount of paperwork and inefficiencies generated by legacy systems and argued for how mobile technology could revolutionise the modus operandi of construction companies. The guiding coalition in the form of Mr. Jacobson and Mr. Nilsson established a strategic vision, with mock-up versions of the software that was demo-able for prospective clients. When the strategic vision was set out, he enlisted a volunteer army by acquiring the assets and liabilities of a struggling company; these were the building blocks that subsequently formed NEAB. As previously stated, Mr. Jacobson was careful to point out the need for the owner, himself, not to take possession of all responsibility; this would create unnecessary hierarchies that could impede growth. Action was thus enabled by removing barriers.

As the sales figures matured, Mr. Jacobson focused on building an organisation apt for serving broader segments of the CMC industry. This included the setup of a sales department, and an evaluation of the current management on whether it was fit for the task. Since the product largely has gone unchanged, there has not yet been any pressing need for a transformation of the customer development department to functional departments. If the firm continues to grow, which is very likely, this will be one of the major organisational issues at hand. As NEAB still operates like a startup in many ways, loss of organisational agility is not currently a problem. Thus, phase four from Mr. Blank’s works does not apply for the while being.

In a very recent development, the majority of NEAB’s shares were acquired by Monterro, a private equity firm, resulting in significant wins for many people in the organisation, as many department heads, project leaders, and developers were shareholders. Monterro has an years’ worth of experience in developing and sustaining acceleration for its acquisition targets, which provided enough rationale for Mr. Jacobson’s to give up his majority stake.

Table 5.1 NEAB's process for leading change

The eight-step process for leading change	NEAB
1. Create a Sense of Urgency	✓
2. Build a Guiding Coalition	✓
3. Form a Strategic Vision and Initiatives	✓
4. Enlist a Volunteer Army	✓
5. Enable Action by Removing Barriers	✓
6. Generate Short-Term Wins	✓
7. Sustain Acceleration	✓
8. Institute Change	

5.1.4 Utilisation of resources and capabilities

5.1.4.1 The entrepreneur

The resources and capabilities in technology startups, as described in chapter three, were highly influenced by the presence of Gartner's 14 characteristics in the entrepreneur, indicating how well equipped he or she was to take on an entrepreneurial challenge. In addition, the ability to recognise a need in a specific customer segment and translate that need into a product or service was also identified as a pivotal ability. That ability can stem from different sources, ranging from a natural aptitude or from earlier experiences in mature companies or other startups, which researchers have hypothesised would increase the chance of success. Results from academia over the past years have confirmed the assumption that habitual entrepreneurs express a stronger correlation than non-habitual with respect to successful startups i.e. ventures with high revenue growth.

In conformity with theory, NEAB expresses this correlation being a fast-growing startup founded by people with a history of previous endeavours in the entrepreneurial context. These experiences allowed Mr. Jacobson to access enough financial capital to acquire the assets and liabilities of Millnet, by selling his first company in 2003. Even more invaluable was the experience of having run a previous startup and falling into all pitfalls that first-time entrepreneurs tend to do; the flipside, naturally, being the recognition and confirmation of what mechanisms that actually did work, e.g. a market and customer-oriented mindset. Another asset Mr. Jacobson refined during this time was his social capital, which allowed him to join forces with Mr. Nilsson as well as facilitating the procurement of human resources in NEAB.

When comparing Mr. Jacobson's individual characteristics to Gartner's list, a couple of attributes stand out as most evident. First, just as Gartner suggest, *determination and perseverance* is the most useful quality when overcoming challenges and is one of the most salient components of Mr. Jacobson's persona. He thrives in competitive environments and has an equal *drive to achieve* in order to live up to his own standards and provide the best possible product to the customers. Third, Mr. Jacobson has showed a refined proficiency in *calculating risks* and in a well thought through manner evaluated whether or not it would be possible to get the company cash flow positive before running out of capital. Jeopardizing his own money made this decision a lot riskier in comparison to a VC-funded approach, rendering the potential consequences of a wrong calculation far more punishing. Fourth, as the high energy level has permeated the working environment at NEAB, Mr. Jacobson should also be credited for this quality. Fifth, his *creativity and innovativeness* has allowed

him to identify and exploit the best practices in the companies he has come across prior to founding NEAB and has been key to developing NEXT. Lastly, Mr. Jacobson has also showed a high level of *vision*, *passion* and *team-building* qualities.

Table 5.2 Mr. Jacobson's characteristics

Characteristics	Description	Mr. Jacobson
1. Determination and perseverance	More than any other aspect, total dedication to success and focus on advantage can overcome obstacles and setbacks	Strong
2. Drive to achieve	Entrepreneurs are generally internally driven by a strong desire to compete and excel against self-imposed standards	Strong
3. Opportunity orientation	The constant awareness of opportunities that exist in the everyday life tend to be the entrepreneurs focus rather than resources, structure or strategy	Medium
4. Persistent problem solving	Successful entrepreneurs do not fear difficult situations. Rather, their self-confidence seem to make them believe that the impossible just takes a little longer	Medium
5. Seeking feedback	Entrepreneurs tend to desire constant feedback to know how well they are doing and become even quicker learners	Medium
6. Internal locus of control	The belief in oneself and the notion that the fate of the startup is within own control and influence are ubiquitous in successful entrepreneurs	Medium
7. Tolerance for ambiguity	The uncertain environment of startups means that the entrepreneur must be able to handle stress and cope with the lack of organisation and structure	Medium
8. Calculated risk taking	The ability to calculate risk in a precise way and do everything possible to get the odds in one's favour	Strong
9. Tolerance for failure	This implies that entrepreneurs regard failure as an opportunity to learn and not as a disappointment and emotional setback	Medium
10. High energy level	A heavy workload and stressful demands faced by entrepreneurs must be compensated by a high level of energy	Strong
11. Creativity and innovativeness	Creating value for customers often stem from an innovative and creative skill	Strong
12. Vision	Entrepreneurs know where they want to go and what the company should look like in the future even if this vision might not always be predetermined	Strong
13. Passion	Passion is a fundamental emotional experience for entrepreneurs and translates into a strong devotion to their work	Strong
14. Team-building	While often being strong individuals, successful entrepreneurs realise that they need to have qualified and well-motivated teams to help handle the new venture's survival and growth	Strong

Strong	Medium	Weak
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5.1.4.2 Company-wide

Given the wide array of capabilities that exist today, startups need to focus their efforts to develop those that really matter and can be the difference between failure and success. Rangone's (1999) study of 14 different SME's emphasised the importance of three such capabilities; innovative capabilities, production capability, and market management capability. For NEAB, all three have been present in one way or another. First, the innovative capability, as discussed earlier, has enabled NEAB to capitalise on the company's knowledge of best practices in the CMC-industry by incorporating them into NEXT. Second, the company has, in conjunction with Rangone's description been able to "produce and deliver products to customers while ensuring competitive priorities". This has manifested itself in the scalability and module built-up feature of NEXT, which has favoured a fast and flexible implementation while at the same time smoothing the inclusion of specific customer needs. Finally, the marketing management capability of NEAB has translated into a sustainable

strategy for leveraging the market and customer knowledge into a viable value proposition that in a concrete way address the customers WTP for cost-cutting improvements.

Comparing NEAB's preconditions in terms of capabilities to those of Betz's, there are an equal number of similarities and differences. To begin with, the first capability (1) was not necessary in NEAB's case. Since Mr. Jacobson founded the company in 2014, it has except for the first couple of months in 2014 been cash flow positive. At the very beginning the company lost roughly 250 000 SEK every month and had to be financed through external capital. Mr. Jacobson, never questioning his business idea, saw no need of external capital and thus went on to fund NEAB himself. As soon as the effects of the company's scalable business model kicked in and the company had enough customers to generate excess cash, it became self-sustaining and has remained so ever since. It is reasonable to assume that the short time-span from launching NEXT to its commercial breakthrough was facilitated by Bygglet's entry a few years earlier, which had created an awareness around cloud-based project management tools which made customers more receptive to the product. This predicament would also have contributed to perfecting (4) and (5), which according to Mr. Jacobson primarily originates from the uniqueness of NEXT, rendering the actual selling capabilities virtually redundant. NEAB's selling capabilities is thus stronger related to the actual strength of value proposition and the probable net promoter score of the customers. (3) is effectively a result of NEXT's scalability. (6) and (7) are effectively none of NEAB core capabilities. (6) is closely related to (3) and (7) is irrelevant since there were no competitors at the time of NEAB's inception except for Bygglet, whose challenges were unknown. (8) has also had a small role to play as the product, NEXT, has undergone little change since 2014. Most of the effort and product development enabling NEXT occurred during the years when Mr. Jacobson and Mr. Nilsson worked at their previous workplaces.

Table 5.3 NEAB's capabilities in comparison to Betz's

Betz's Capabilities	NEAB
1. Access to venture capital	
2. Development of new products, new services, or a prototype	✓
3. Building product capacity	
4. A way to increase sales	✓
5. A way to increase profits	
6. Ability to expand production	
7. Ability to overcome the challenges of competitors	
8. Improvement of product quality and diversification	
9. The establishment of organisation and management systems	✓
10. Management of current assets	✓

5.1.5 Mapping shifts in SCA requirements

Even though NEAB's core product has been relatively constant since the company was established in 2014, the company has achieved an impressive revenue growth sparked by an ever-increasing number of subscribing customers, resulting in a market share of roughly 2%. The company has, thus, capitalised on its current SCA; A unique combination of deep industry experience, empirical studies and an ability to extract all discovered best practises within CMC-companies in a user friendly, one-size-fits-all, product that can be implemented in a short amount of time. Judging by NEAB's website and Mr. Jacobson's own words, the many references that the company has accumulated over the years have been crucial to convince customers who otherwise might have questioned the advantages of using NEXT. The practical aspect, the short time required to get the system running, and NEAB's knowledge of best practises in the CMC-industry have also been vital to get customers on board and to reinforce their belief in the product. While some are interested in the technology behind the cloud service, it's rarely the main reason for which they decide to make the final purchase.

In light of this customer behaviour, it seems likely that the explanation of NEAB's position in the technology adoption life cycle has more to do with the company's young age and short time on the market in lieu of different customers' response to a discontinuous innovation based on new technology. This assumption is supported by the fast pace of customer acquisition where the company currently adds 20 new customers each month, all while spending little time raising awareness in the market, instead relying on word-of-mouth marketing. The close to non-existent inertia from potential customers was confirmed by Mr. Jacobson, who said that NEAB rarely encounters naysayers during demos and the ones that do resist are so few that they don't represent

a threat to the customer growth. Consequently, the company has not been required to alter its resources and capabilities and ultimately the SCA not any greater extent.

5.1.6 Adaption of the value proposition

For technology startups, it may be sensible to adapt the value proposition after a certain amount of time, when more significant customer intelligence data have been made available. According to the *product life cycle model*, the product should be extended with warranties, after-sale service, and other extensions during the growth phase. For NEAB, however, these data were readily available in the form of the knowledge of the workflows of the CMC firms; Mr. Jacobson and his team had deep insights into the aspect highly valued by the customer. The WTP for different functions were already taken advantage of, and all relevant functions and warranties were built in from day one. As a consequence, the product has remained notably static in the period studied.

5.1.7 Case Summary

NEAB provides excellent insights with aspect to the purpose of this thesis. It is evident that if the value proposition is thoroughly prepared and well-calculated, no immediate need for adaption is necessary to catalyse and accelerate growth. In NEAB's case, the key to designing such value proposition was Mr. Jacobson's previous venture in the CMC market as well as his previous experience in the startup scene, enabling access to funds, competence, and market insight. Going forward, NEAB has additional growth opportunities to evaluate, but given their current trajectory, there is no immediate need for a change of course. Naturally, this could change when entering new diffusion segments, such as the early majority, where the hypotheses regarding customer needs are still untested.

Deriving main takeaways from the NEAB case study, Mr. Jacobson's excellent leadership and market insight has been the pillar of NEAB's success. Mr. Jacobson swiftly laid out a strategic vision of a product that subsequently was realised under the lead of Mr. Nilsson. The product itself was thoroughly connected to a well-researched customer WTP, thus reducing the need for a subsequent adaptation. Their organisation has benefited from actions relatable to Kotter's 8 steps for leading change, regardless of this was a mere coincidental, or a predetermined strategy manifesting given Mr. Jacobson's industrial engineering-background. Regardless, the resulting organisation is well fit for capturing additional market share, under the new lead of the business developing firm Monterro.

5.1.8 Predicting future developments

5.1.8.1 Strategy

NEAB has in a formidable manner traversed the different steps an organisation should implement when setting up a new environment or undergoing change. The last puzzle piece, only starting to be relevant now, is the transformation to a professional organisation, under the guidance of the new owner Monterro. This will entail phases 2-4 of Mr. Blanks framework (table 3.8), with the objective of establishing an organisation analogous to Mr. Kotter's *dual operating system*. Being a startup, most of the effort will be allotted to establishing administrative routines, functional departments, and developing relevant metrics enabling effective steering.

5.1.8.2 Resources & Capabilities

Currently pursuing the early adopter customers, the company has a long way to go before running out of growth opportunities. As such, it is still too early to define what resources and capabilities and ultimately SCAs that will be necessary for NEAB to overcome the challenges further down the road of sustaining the growth trajectory. While difficult to predict the exact array of SCAs needed in the future, past and current indications suggest that few changes will be required. Firstly, the composition of different customer segments has looked more or less the same since the company launched, where customers with 1-4 employees, in terms of numbers, has constituted the largest share. Their aforementioned reasons for implementing NEXT; time-savings and productivity improvements, are not the emblematic key purchasing criteria for customers of this type, according to Moore & McKenna (1999). Rather, typical innovators and early adopters tend to put more emphasis on the technological aspect and are intrigued with any fundamental advance, making purchases simply for the pleasure of exploring the new device's/service's properties. Conversely, NEAB's typical customer tend to have more in common with customers from the early majority. These are ultimately driven by a strong sense of practicality since they know that many contemporary innovations end up as failures, making them patient to wait and see how other companies are making out before they buy in themselves. References are highly valued and even a must for some before making any substantial investments.

In addition, Mr. Jacobson repeatedly emphasised the homogeneity of the CMC-industry, where workflows from one company to another differ marginally. Likely, this quality also decreases the differences in the customer spectra ranging from innovators to laggards, who normally express unique psychographic profiles - a combination of psychology and demographics that makes their marketing responses different to those from the other groups. Taking all above aspects into

consideration, there is a chance that NEAB will have an easier prospect of sustaining growth than theory suggests, which in turn could curtail the urgency of adapting the SCA. To put it another way; if most customers look for the same qualities in the value proposition and desire the same selling process, then there are few reasons to alter the status quo, which so far has proved highly effective.

5.1.8.2 Value Proposition

For NEAB, the product offering has not been altered to a noteworthy extent. However, as competition intensifies, and the diffusion of the technology increases, status quo may not suffice to capture market share in the same rate as currently enjoyed. NEAB and Bygglet are yet to capture large portions of the market and establish a market-dominating position. One of the potential areas to investigate is the pricing of the systems; Mr. Jacobson mentioned that small CMC firms view NEAB as very expensive, whereas large firms view their offering as extremely affordable. This may be symptomatic of an inappropriate pricing structure, where small firms are deterred from committing to a purchase due to the high monetary threshold, and far too low exchange value is extracted from larger firms, leaving money on the table. Instead, according to value proposition theory, a low price for customers with a lower purchasing power can be offset by a higher price for customers that are able to pay more. This assumes that it is possible to discriminate with aspect to purchasing power (such as reduced fares on public transport only for student card holders). As all new subscriptions are subject to a manual tendering process, this is highly possible. NEAB has, as described in the empirics' section, developed differentiated solutions for smaller and larger firms respectively, but has evidently not matched this segmentation with adequate pricing.

This issue very much relates to the prospect of expanding their product offering to smaller firms. As of now, NEAB has 50% less firms in scope compared to their main competitor, Bygglet. Bygglet has clear, differentiated value propositions directed to small, medium, and large sized firms respectively whereas NEAB provides vaguely defined packages which fails to differentiate the features, and capture differentiating WTP. For example, as Figure 4.1 shows, over 31 000 firms employ 1-4 workers, making it the largest share of CMC firms in the Swedish market. However, NEAB's "Small Business" solution is aimed towards firms with 1-10 employees; it would be highly sensible to adapt their value proposition to more specifically target the smallest (1-4 employees) firms, making up the majority of the firms available on the market. This would incorporate a redesign of their product offerings, as a product configuration with only essential features would be provided to the smallest firms. Their mid-level offering, "Project", would thus be clearly target towards mid-sized

firms. A reinvented focus on smaller firms would also yield implications on the sales process; smaller firms require less effort in persuasion due to compressed decision chains.

5.2 Eliq AB

5.2.1 Assessing the market entry choice

The digitalisation of Swedish electricity meters during 2003-2009 was the initial catalyst of Exibea (now Eliq) as it enabled the usage of smart meters. Thus, when Exibea launched their first product, the ELIQ, in September 2010 and entered the market for smart meter products, they did so thanks to the digitalisation of the Swedish electricity grids. Being an early entrant, however, did not mean that the company was first to market. Already in 2005, the Swedish company, PowerConcern launched the world's first wireless energy monitor with an optical eye with their product PMD1050. The PMD1050, was just one of many other energy monitors that were launched prior to the introduction of the ELIQ. The British company Onzo introduced their first product in 2009, which included an energy display and an intelligent web-based service, enabling customers to reduce electricity consumption and lower their bills. Unlike Exibea, Onzo targeted utilities, and not individual customers, thereby pursuing a B2B business model already from the start.

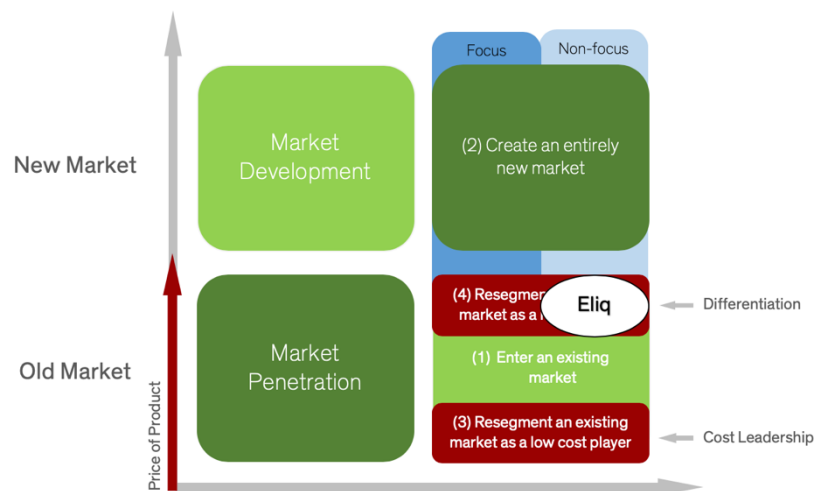


Figure 5.7 Eliq's position in the Modified Ansoff Matrix

Given the market landscape in 2010, with numerous companies already present with their proprietary energy monitors, Exibea chose to resegment an existing market as a niche player with respect to Mr. Blank's four market entry strategies. This is clear by observing the ELIQ in relation to the other smart energy meters at the time. As opposed to incumbents, Exibea put more emphasis into the actual

visualisation of the data with a big and clear colour display and a nice presentation of the measured values and different functions. These features were meant to appeal to the broader consumer market, who, presumably, could pay a higher price if the functionality and the user friendliness of the product were sufficiently sophisticated. Thus, it can be argued, Exibea discountenanced the innovators which had been the customer group responsible for most purchases of energy monitors thus far, to develop a product that had more potential in customer segments such as the early adopters and the early majority. The pricing strategy Exibea pursued initially also bear witness to their niche strategy, or what Mr. Porter would have labelled as *differentiation*. When launching ELIQ, Exibea priced it at 2 500 SEK, which was roughly three times more than what customers paid for the PMD1050, which sold for 795 SEK. Other energy monitors were priced in the range 700 - 1600 SEK (Berglund & Hartelius, 2010).

The strategic reorientation of Exibea in 2015, when the company changed its name to Eliq and completely remodelled the value proposition, also brought about a new market entry. The company abandoned their earlier focus on hardware and was now restarted as a pure energy analytics company providing cloud services. Interestingly enough, Onzo made the exact same move when they in 2012 sold off the hardware business to the Scottish utility SSE to pursue a SaaS business model. As a consequence, the market for customer engagement platforms for utilities in Europe was already existent, yet immature. As Eliq targeted the same kind of utilities as Onzo and other companies providing energy monitoring services, they did not pursue any niche or low-cost strategy. Rather, they aspired to improve the existing variety of services by capitalising on their engagement platform's unique features and the team's substantial B2C experience of understanding what household consumers valued and not.

5.2.2 Breaking down the product

The *raison d'être* of Eliq is the value it brings to customers in the form of improved customer intelligence and customer loyalty; customer churn is one major challenge utility firms are facing. To bring this core benefit to the customers, Eliq provides a white label SaaS solution, which acts as the *leader* product. As an augmented product, Eliq provides customisation of the software, where customers can further differentiate themselves towards the consumer. This is a common addition to the product but does not provide notably high value for the customer, thus it can be classified as a filler. In addition, Eliq provides technical support for its services. Previously, Eliq focused intensively on AI analytics, a focus that the firm has to some extent retained. However, there are limited incentives for the utility to pay extra in order to enable these features for the end consumer. Earlier, Eliq marketed physical displays, but these have been removed from their

current product offering, although they potentially could provide additional perceived value to the customers. Furthermore, Eliq employs a hybrid of subscription and alternative matrix pricing; it charges its customers depending on the number of consumers the utilities have in a given period.

Three levels of product	
Eliq	
Core Benefit	Improved customer loyalty
	Improved customer intelligence
Actual Product	White label software
Augmented Product	Technical Support
	Customisation of software

Figure 5.8 Break-down of Eliq's product offerings

High	Expected Adoption	Fillers	Leaders
		Customisation	White label SaaS
Low	Expected Adoption	Killers	Addons
		AI-driven analytics	Physical displays
		Perceived Value	
		Low	High

Figure 5.9 Eliq's offering – perc. value vs. exp. adoption

Eliq is currently positioned in the *introduction* phase of the product life cycle. This is evident when investigating their sales, profits, marketing objectives, and competitive landscape. The limited sales they have managed to conduct does not cover their losses, and the threat stemming from competitors is low. The overall current focus for Eliq is to create product awareness and evaluate the outcome of their partnership with various European utilities. Unfortunately, this is incongruous with the delimitations of the case selection; Eliq was selected under the premise of their provision of a product in the *growth* phase. However, the data do not support this original assumption.

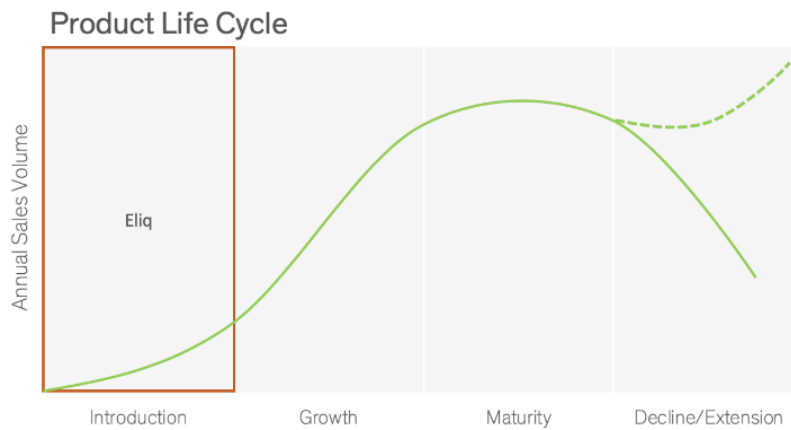


Figure 5.10 Eliq's position in the product life cycle

In Figure 5.11, the diffusion of Home Energy Management Systems for households in Sweden is displayed. While this is not equivalent with the diffusion of the technology on utility level, it is still an excellent indicator of the penetration of the technology on the consumer level, and thus relevant when investigating market pull. According to Statista, the household penetration is 10.5% in 2019, and it is expected to hit 21.8% in 2023 (Blumtritt, 2018). However, as Bixia is the only utility in Sweden publicly marketing the service Eliq is providing, it is reasonable to allocate the diffusion of Eliq's product among utilities to the *innovator* segment.

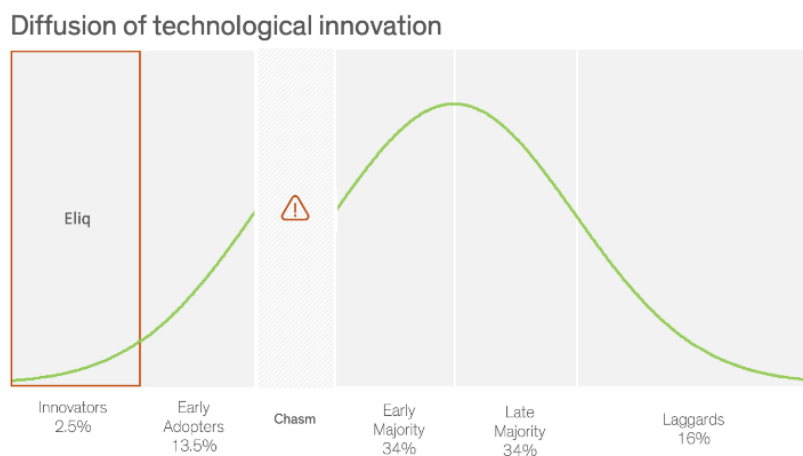


Figure 5.11 Eliq's customers' position on the technological diffusion curve

5.2.3 Establishing the organisation

When applying Kotter's framework for leading change on Eliq's journey up to this point, many interesting insights can be rendered. First of all, there has been no evidence encountered neither throughout the interview, nor when investigating secondary data, that Eliq has created a sense of urgency when entering the market. Instead, during the Exibea (pre 2016) phase, they relied greatly on the belief that their product was superior to the competitors, and that their skills in sales would ultimately render them a market leading position. When this did not materialise, they, as previously described, implemented a complete

overhaul of their business model. The guiding coalition, however, was a strong force for sustaining the struggle towards higher sales; the team was a well-forged set of individuals with experience from earlier startups, academic research, and sales management. The redesign of the business model was paired with the establishment of a new strategic vision, aimed towards utilities. Regarding the rest of the items of the eight-step process; no evidence of intentional measures to enlist a volunteer army and removing barriers was encountered during the research, short-term wins have been sparse, and there is no acceleration to sustain.

Table 5.4 Eliq's process for leading change

The eight-step process for leading change	Eliq
1. Create a Sense of Urgency	
2. Build a Guiding Coalition	✓
3. Form a Strategic Vision and Initiatives	✓
4. Enlist a Volunteer Army	
5. Enable Action by Removing Barriers	
6. Generate Short-Term Wins	
7. Sustain Acceleration	
8. Institute Change	

5.2.4 Utilisation of resources and capabilities

5.2.4.1 The entrepreneur

Eliq's past struggles of finding the right company-market fit indicates a strong presence of *determination and perseverance* as well as *persistent problem solving* in Mr. Botha. This should come as little surprise given that he and the team worked for several years without any major breakthrough, which would put a strain on the patience and endurance of many entrepreneurs. This situation has also required a *high energy level* and a true *passion* for the everyday work, as the absence of these qualities would have made the challenge of working in headwind, too overwhelming. Lastly, the *tolerance for ambiguity* has also been a distinctive quality in Eliq's founders, especially in the first phase of the company when the market wasn't as well defined as it is now. During the years 2010-2015, Eliq received mixed signals from the market, as glimmers of hope appeared only to disappear moments later, as when IKEA placed an order of 10 SEK mn and bought stocks in the company, only to terminate the collaboration the following year. These mixed signals in terms of market readiness for the product also revealed themselves in the company's sales figures, which experienced a volatile trajectory between 2010 and 2015.

On the brighter side, Mr. Botha and the other entrepreneurs have enjoyed an extensive usage of their social capital, which has acted as

Eliq’s primary channel for accessing venture capital and human resources. While difficult to predict the exact effects should the social capital have been less prominent, it is not unreasonable to assume that in the worst case, the company would not have had enough funds to make it past 2015 and the reorientation that now has reignited the hope of a commercial breakthrough. As opposed to the other case companies, Eliq had not only one, but five co-founders, leading to a considerably larger network and thus greater potential to leverage existing contacts.

Table 5.5 Mr. Botha's characteristics

Characteristics	Description	Mr. Botha
1. Determination and perseverance	More than any other aspect, total dedication to success and focus on advantage can overcome obstacles and setbacks	Strong
2. Drive to achieve	Entrepreneurs are generally internally driven by a strong desire to compete and excel against self-imposed standards	Medium
3. Opportunity orientation	The constant awareness of opportunities that exist in the everyday life tend to be the entrepreneurs focus rather than resources, structure or strategy	Medium
4. Persistent problem solving	Successful entrepreneurs do not fear difficult situations. Rather, their self-confidence seem to make them believe that the impossible just takes a little longer	Medium
5. Seeking feedback	Entrepreneurs tend to desire constant feedback to know how well they are doing and become even quicker learners	Medium
6. Internal locus of control	The belief in oneself and the notion that the fate of the startup is within own control and influence are ubiquitous in successful entrepreneurs	Medium
7. Tolerance for ambiguity	The uncertain environment of startups means that the entrepreneur must be able to handle stress and cope with the lack of organisation and structure	Strong
8. Calculated risk taking	The ability to calculate risk in a precise way and do everything possible to get the odds in one's favour	Medium
9. Tolerance for failure	This implies that entrepreneurs regard failure as an opportunity to learn and not as a disappointment and emotional setback	Medium
10. High energy level	A heavy workload and stressful demands faced by entrepreneurs must be compensated by a high level of energy	Strong
11. Creativity and innovativeness	Creating value for customers often stem from an innovative and creative skill	Medium
12. Vision	Entrepreneurs know where they want to go and what the company should look like in the future even if this vision might not always be predetermined	Medium
13. Passion	Passion is a fundamental emotional experience for entrepreneurs and translates into a strong devotion to their work	Strong
14. Team-building	While often being strong individuals, successful entrepreneurs realise that they need to have qualified and well-motivated teams to help handle the new venture's survival and growth	Medium
		Strong Medium Weak

5.2.4.2 Company-wide

In terms of the match between Eliq’s capabilities and those presented by Rangone (1999), the company’s most notable similarity is the innovative capability, as it is the basis of the company’s competitive advantage and its absence would have implicated that the product development that preceded Eliq’s software platform never would have materialised. If Eliq meets the requirements of Rangone’s production capability is still unclear as the company is yet to prove its ability to deliver their service to customers while sustaining focus on their competitive priorities. In the same way, Eliq’s market management capability has not yet crystallised, although historically deficient.

In comparison to Betz (1998), Eliq has notably displayed four capabilities, (1), (2), (8) and (9), while the others have been less evident. As already mentioned, (1) has showed itself in the close to 60 SEK mn the company has raised since its establishment. (2) derives from Eliq’s customer engagement platform and the innovations that have been required to turn it into a value proposition. As for (8), Eliq has been able to improve the quality of the product by essentially changing its overall attributes and fields of application by entering a, to the company, new market with a completely different set of customers’ needs to be solved. Lately, as the number of employees has grown rapidly, Eliq has also succeeded in establishing systems related to managing the organisation in a superior way, (9), by implementing more distinct areas of responsibilities and hierarchical structures.

As for the capabilities that have been less noticeable, (4) and (5) need no further explanation as the company is yet to find a sustainable way of generating revenue and profit. While (3) was existent in the company’s hardware focused days, it’s still too early to claim whether it applies in the new market context, although there are indices that would suggest that the current business model is more scalable than the former one. As for (6), it still remains to be seen whether the organisation can expand as demand potentially ramps up in the future. (7) is practically non applicable as any potential challenges of Eliq’s competitors are unknown.

Table 5.6 Eliq's capabilities in comparison to Betz's

Betz (1998)	Eliq AB
(1) Access to venture capital	✓
(2) Development of new products, new services, or a prototype	✓
(3) Building product capacity	
(4) A way to increase sales	
(5) A way to increase profits	
(6) Ability to expand production	
(7) Ability to overcome the challenges of competitors	
(8) Improvement of product quality and diversification	✓
(9) The establishment of organisation and management systems	✓
(10) Management of current assets	

5.2.5 Mapping shifts in SCA requirements

Over the course of the past 10 years that Eliq, and formerly Exibea, has been in business the company has, according to Mr. Botha, undergone little change with respect to the resources and capabilities in the company’s control. In spite of this marginal change, the company’s SCA has shifted significantly since the early days. On the basis of the difficult-to-imitate attributes that acts as the primary source of superior value creation and competitive advantage, Eliq has

had to change its legacy focus of selling a somewhat basic hardware product. This did not turn out to be a sustainable strategy to compete in the marketplace and essentially implied that the company didn't have a SCA at all. A testimony of why Eliq's former business model never prevailed can be found in a caption on their website "Get personal, the difference is engagement". Apart from the first reason, the rather low level of technology height and substitutability of other energy monitors, the Eliq (Eliq's first product) did not engage customers to a sufficient extent. Sure, they were able to monitor their energy consumption in real time, but then what? While the company claimed, citing a SESAC-study from 2007, that visualisation of the energy consumption motivated households to lower the cost of their energy bills with up to 25% (Ottander, 2012), it did not provide enough assertion to convince customers in segments beyond *innovators* to purchase the product.

Nowadays, the company addresses the engagement issue by incorporating a plethora of other features, such as invoicing and customer support, in the white label engagement platform that they market to utilities. By doing so they leverage the company's knowledge of bringing trust to energy suppliers, increase customer engagement by creating awareness around energy consumption and thus transforming the outdated way of selling energy as a pure commodity, rather than providing it as a service - in other words, the SCA. This SCA emanates from the product's differentiation, the high flexibility in the design of the engagement platform where each version can be built using already existing software. Whether this SCA will generate the long-awaited breakthrough remains to be seen.

5.2.6 Adaption of the value proposition

Eliq provides perhaps the most insightful examples with aspect to adaption of the value proposition. During the last couple of years, the firm has undertaken major changes in their core business model; the focus has shifted from B2C to B2B, the monetisation has been completely revamped, and the provision of hardware has been completely abandoned. Although these changes come across as pervasive, the product itself has barely changed. Except for the omission of the hardware, the actual product remains the same; enabling the consumer to view his/her energy consumption in real time and draw insights on how to lower his/her consumption from the analysed data. However, this shift rendered large impacts on the top line of the firm. This phenomenon can be explained with concepts derived from value proposition theory; as the firm reinvented itself, Eliq made sure to design the product offering around the price, to provide the functions with the highest WTP, and foremost - to evaluate the WTP. Their original value proposition targeted practically everyone (people living in homes); mildly speaking, their selected

target market was quite heterogeneous, and they made no effort to further segment the market in order to promote different features, capitalise on varying WTP, and investigate how the varying level of consumer technical aptitude would affect sales. Eliq was driven by a firm belief that the core benefits of its product would be sufficient to convince all consumers to commit to a purchase. This did not materialise. Instead, after several years of struggling sales, the company shifted its focus to a homogenous market in the form of utilities, developed ROI model that both indicated WTP and assisted the salesforce, and reconfigured their product offering to provide only the features with the highest WTP and without hardware that would deter utilities to commit to their system.

Table 5.7 Comparing Exibea to Eliq

	Exibea	Eliq
	Pre 2016	Post 2016
Core benefit	Energy consumption monitoring	Customer retention / intelligence
Actual Product	Smart meter and Monitoring Software	White label SaaS Monitoring Service
Business Model	B2C	B2B
Target Market	Home users	Utilities
WTP	Unknown	Supported by ROI models

5.2.7 Case Summary

Eliq provided many interesting insights for this thesis. They are not the epitome of a successful startup experiencing rapid and sustained growth, but they nonetheless offer valuable insight in how a company in a startup phase is able to effectuate a complete overhaul of their value proposition and cater to new organisational requirements in terms of resources and capabilities. However, Eliq is yet to experience the rapid growth that has been observed in NEAB. The competition is increasing, and it is uncertain whether Eliq has found a differentiable value proposition for their selected target market; the resources & capabilities needed for compete in a B2C environment (regardless if Eliq were in possession of them or not) may not be the same compared to competing in the B2B environment).

All is not doom and gloom. Eliq is competing in a rapidly growing market; the market for Home Energy Management is expected to grow with a CAGR of 23.3% until 2025. The possibility of further revisiting their value proposition, chosen marketing strategy, and resources and capabilities in order to catalyse a rapid growth is still very much an option.

5.2.8 Predicting future developments

5.2.8.1 Strategy

Going forward, Eliq is in an acute need of generating short-term wins. The competition is increasing, and Eliq is yet to catalyse any significant growth that would confirm the hypothesis that B2B is a lucrative strategy. Eliq long term focus should not neglect the need for building a professional organisation where change is instituted, but this predicament may not materialise in several years. First and foremost, Eliq may benefit from creating a sense of urgency among its customers. As for now, the service they provide only offers marginal benefits for the utilities; a marketing message incorporating burning platform should be devised and used in order to accelerate growth and attract customers and competence that would form a volunteer army.

5.2.8.2 Resources & Capabilities

Eliq has thus far relied largely on the knowledge-base of the co-founders. As the company continues its planned expansion there are reasons to believe that the expansion of resources must follow. Most notable is the need of continuous funding as there is a risk that the current funds will not take the company past the territory of negative economic margin. The recent successful funding rounds and signed commercial contracts suggest that this will not pose a major problem. What might do so, however, is the challenge of finding and retaining the right employees. The sales process in particular is very demanding in terms of the amount of resources required in addition to the high level of patience and time to bear fruit. A more sophisticated sales department is now taking form and should receive a high priority to rapidly secure more market share and generate a head start before anticipated competition ramps up. Provided that the company now has found the right *product-market fit*, the prospect of success is likely more dependent, at least in the short term, on the value delivery, i.e. sales capabilities, rather than capabilities related to innovating and product development.

5.2.8.3 Value Proposition

Going forward, Eliq should thoroughly investigate what functions of the product enables the highest WTP for the utilities. The recent partnership with Bixia enables Eliq to use the *Voice of Customer* during future product development; current value proposition and its associated products may not be in accordance with market needs, as Eliq's experience from the market primary originates from its B2C venture. As an example, Eliq is still promoting its AI-capabilities, but the connection to the value proposition and customer WTP is unclear at best. Furthermore, a plethora of similar firms has emerged from different part of Europe. As Eliq aims to compete on the European

market, Eliq will compete head-to-head with other firms for the patronage of utilities. In order to avoid downward price pressure and a commoditisation of the service, Eliq may have to differentiate their service offering. This needs to be preceded with intensive studies in customer WTP.

5.3 CellaVision

5.3.1 Assessing the market entry choice

In November 2000, when CellaVision launched the DiffMaster Octavias, they became the first company in the world to launch a product capable of analysing blood samples using automated microscopy. The market for digital cell morphology, despite various attempts of forerunners, had never had the opportunity to materialise - chiefly due to the absence of the advanced computer technology required to perform the image recognition with satisfactory results. In accordance with Mr. Blank's theory, CellaVision's DiffMaster Octavias targeted a large customer base that were unable to use automated microscopy in haematology labs, but who were willing to pay for the service once it existed.

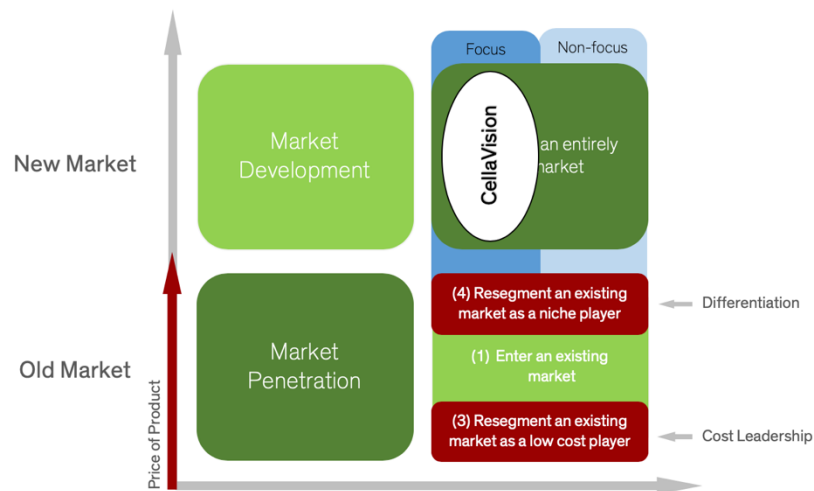


Figure 5.12 CellaVision's position in the Modified Ansoff Matrix

As Mr. Blank emphasises, such companies need to carefully manage the cash burn and make reasonable calculations with respect to the customer adoption rate in order to make it past the first years of non-existent sales. While the revenue growth was off to a rather slow start, the company has now enjoyed multiple years of rapid growth, reinforcing the conviction that Mr. Fåhraeus and the CellaVision certainly team made those judgments successfully. Coupling CellaVision's strategy to Mr. Porter's it's evident that *Focus* is the most congruent comparison since the company's solutions targeted a specific segment, the larger labs, of the haematology market.

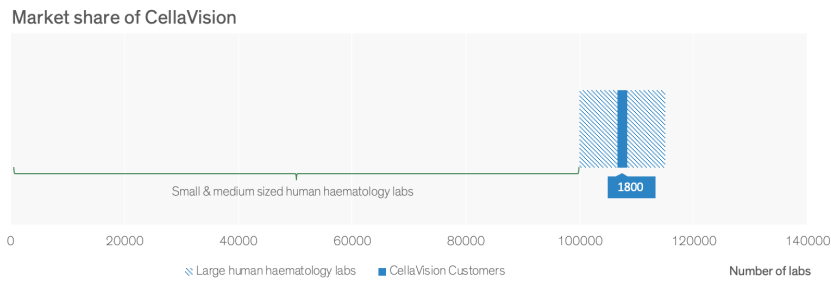


Figure 5.13 Estimated market share of CellaVision as of 2019

In terms of competition, CellaVision has still not experienced any commercially successful companies that have been able to compete within the haematology industry. While present at exhibitions, these firms are still absent in commercial deals with haematology labs. Put simply, the images that are needed in order to carry out digital cell morphology must be of a very high quality, at least as good as those the eye can produce, and CellaVision's competitors have not yet succeeded in developing a technology that can achieve that. In light of this, it seems likely that the company can sustain its growth trajectory for the while being.

5.3.2 Breaking down the product

The core benefit of CellaVision's main product is to improve the efficiency, accuracy, and quality of the customers' cell identification processes. This benefit is productised in a hardware/software solution. The workstation can be extended with software to further examine the cells, and IoT software as earlier described. In addition to the products, CellaVision provides replacement parts and additional software in the augmented product. The cell identification hardware and software solution, such as the DM 1200 (figure 4.7), is the *leader* solely responsible for the success of CellaVision and incorporates the years of research that defines CellaVision. The workstation is in most cases bundled with the examination software, which is a less integral part of the workflow - but nonetheless provides customer value through the natural integration with the imaging system. The IoT solution, where larger labs can collaborate and achieve economies-of-scale by centralising blood analysis and sharing images may only be relevant for larger labs and corporations; this is offered as an additional module to the main system. Many labs do not incorporate a collaborative workflow or are too small for this service to be relevant and would thus not be interested in paying for this addition. For larger labs, however, the potential savings could be huge. Thus, it has a rightful place in the add-on-category of the product configuration matrix. As a last puzzle piece in the product configuration matrix, the *killers* consist of software outside the workflow of analysing blood cells, i.e. tests designed to evaluate employees' proficiency in identifying blood cells, and an educational mobile app. These should not be bundled with the

ANN software, as this could deter customers from purchasing the product.

Three levels of product	
CellaVision	
Core Benefit	Reduce manual work needed to identify illness in blood samples
Actual Product	Hardware/Software solution built with artificial neural networks
	IoT Solutions
	Additional software
Augmented Product	Hardware replacement
	Software updates

Figure 5.14 CellaVision's product offerings

High	Expected Adoption	Fillers	Leaders
		Examination SW	Cell identification HW/SW
Low	Expected Adoption	Killers	Addons
		Empl. Evaluation SW	IoT Communication
		Perceived Value	
		Low	High

Figure 5.15 CellaVision's offering – perc. value vs. exp. adoption

CellaVision employs a rather standardise method of monetisation; through the system integrators it collaborates with, it sells its software and machines for an agreed price. As previously mentioned, CellaVision planned to employ an alternative metric pricing, where it charged for the disposable cuvettes. However, as these plans were scrapped, CellaVision resorted to a more conventional monetisation method. It could be argued that the firm would have experienced a higher rate of growth, should they have found a viable solution to the technical issues surrounding the cuvettes, or another monetising method employing AMP.

CellaVision's products are currently in the *growth* phase. This is supported by the predicament of rising profits, and the growing number of prospective competitors. It should be noted, however, that the competitors haven't reached CellaVision's capabilities as of yet according to CellaVision (CellaVision #Sitdown, 2015). As the market now is well informed of the capabilities of digital analytics of cell structures, the focus for CellaVision now is to maximise their market share, rather than create product awareness and trial. The distribution of the product is also intensified, with new market entries in Indochina and the Pacific.

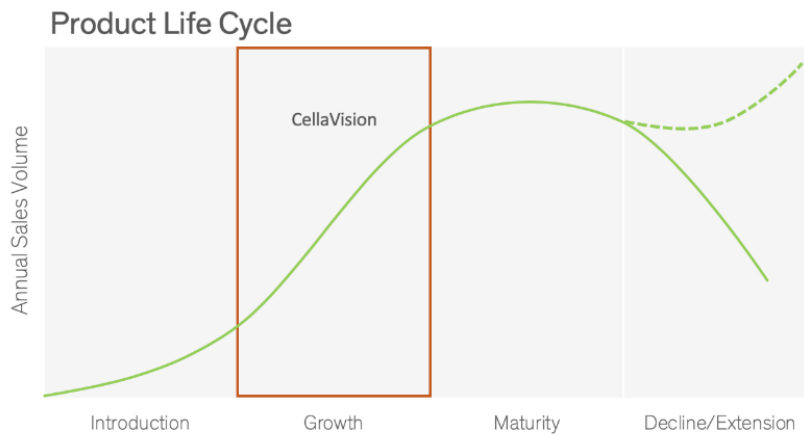


Figure 5.16 CellaVision's position in the product life cycle

In order to evaluate the customer type currently attracted by CellaVision's value proposition, a quantitative reasoning can once more be conducted. As CellaVision currently is the only actor in the field of digital cell identification and morphological examination, all users of such technology can be derived from the current market share of CellaVision. Thus, as the share of market captured by CellaVision amounts to 12%, CellaVision is currently positioned on the latter part of the *early adopter* segment. This could imply that as the firm approaches the early majority segment, adaptations of the value proposition and product offering may be advisable in order to match the needs of more risk-averse customers.

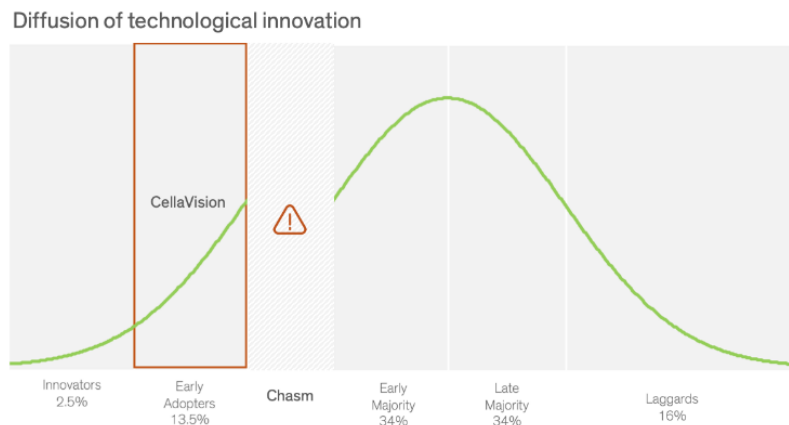


Figure 5.17 CellaVision's position on the technological diffusion curve

5.3.3 Establishing the organisation

Mr. Fåhraeus laid out his vision for CellaVision in the early 90's, and since then it has progressed through various stages of the process of building a company. Firstly, Mr. Fåhraeus created a sense of urgency by pointing to the "blue ocean" of unexploited business opportunities in the field of automated microscopy for blood cell analysis, in conjunction with the preliminary studies conducted by EnPeCe laying out a timeframe for developing a prototype. A guiding coalition was formed, by incorporating a first prospective customer (Mr. Simonsson,

the author of the book “The CellaVision story”), venture capitalists with insight in the commercial world, and a professional CEO in the form of Ms. Yvonne Mårtensson. Mr. Fåhraeus laid out several initiatives coupled with strategic visions, among them the idea of providing disposable cuvettes to enable a low-threshold monetising strategy which would catalyse a high growth. In order to conduct the technical research, and to implement the computational ideas, Mr. Fåhraeus enlisted a plethora of graduate students and newly graduated engineers. These formed the volunteer army that put their hopes in Mr. Fåhraeus vision of building the next big thing within biotech. It is uncertain whether CellaVision had barriers that were taken down in order to initiate their growth; perhaps their acquisition of Triangle Biomedical Sciences, Inc (which had acquired Intelligent Medical Imaging in 2000) which enabled them to enter the North American market could be interpreted as a barrier-breaking measure.

Clearly absent in the history of CellaVision, however, are the short-term wins. Mr. Fåhraeus, partly relying on the preliminary studies from EnPeCe which projected highly compressed development and marketing time for their product, was under the impression that CellaVision would sell 1 600 units in seven years. It would take seven years until even the first unit was sold; another 15 years until CellaVision surpassed 1 000 units sold. (Simonsson, 2018). To CellaVision’s defence, however, their growth has been remarkably consistent throughout the rest of their history. The growth took a good 15 years to catalyse, but it was undeniably sustained.

Table 5.8 CellaVision's process for leading change

The eight-step process for leading change	CellaVision
1. Create a Sense of Urgency	✓
2. Build a Guiding Coalition	✓
3. Form a Strategic Vision and Initiatives	✓
4. Enlist a Volunteer Army	✓
5. Enable Action by Removing Barriers	
6. Generate Short-Term Wins	
7. Sustain Acceleration	✓
8. Institute Change	

5.3.4 Utilisation of resources and capabilities

5.3.4.1 The entrepreneur

Among the examined case companies CellaVision stands as the brightest shining star, boasting the most impressive revenue growth in the cohort. At the root of this success lie Mr. Fåhraeus imaginative mind-set, his wealth of ideas and his ability to transform these ideas

into real products and services using cutting-edge science and technology.

Mr. Fåhraeus displays perhaps the most pregnant match with Gartner's list of 14 capabilities present in entrepreneurs. According to himself, he is most driven by his curiosity and drive to do things that never have been done before, which correspond to Gartner's *opportunity orientation* and *creativity and innovativeness*. The underlying reason for founding CellaVision was an opportunity to let a computer perform the time-consuming, tedious and sometimes difficult cell identification. Without the creativity and innovativeness to evaluate and then merge different sciences to uncover the best method to achieve this vision, however, the significance of the opportunity orientation likely would have been marginalised. Next, Mr. Fåhraeus has proved to be a persistent problem solver in order to overcome the challenges linked to the product development. Moreover, Mr. Fåhraeus persona is highly influenced by his affinity to risk taking, i.e. *calculated risk taking*, which has been a recurring element throughout his professional life. He does not fear the confrontation of established companies and paradigms. To the contrary, he regards it as another impetus to compete and finally win, much like the battle between David and Goliath.

More notable than any other quality, though, is Mr. Fåhraeus almost inexhaustible *high energy level, passion, strong vision and drive to achieve* as well as his *determination and perseverance*. While not operationally responsible for CellaVision since July 1998, when Ms. Mårtensson replaced him as the company's CEO, Mr. Fåhraeus had been profoundly involved in the development of the technology, which just like in most startups was paved with teething problems. It can thus be reasoned that the disentanglement of the problems that plagued the company between its inception and the launch of the DiffMaster Octavias, such as the failed cuvette business model, called for a certain level of dedication in Mr. Fåhraeus and his co-innovators. His team-building skills should not be underestimated either at it has been crucial to recruit many of the engineers at CellaVision.

Table 5.9 Mr. Fåhraeus's characteristics

Characteristics	Description	Dr. Fåhraeus
1. Determination and perseverance	More than any other aspect, total dedication to success and focus on advantage can overcome obstacles and setbacks	Strong
2. Drive to achieve	Entrepreneurs are generally internally driven by a strong desire to compete and excel against self-imposed standards	Strong
3. Opportunity orientation	The constant awareness of opportunities that exist in the everyday life tend to be the entrepreneurs focus rather than resources, structure or strategy	Strong
4. Persistent problem solving	Successful entrepreneurs do not fear difficult situations. Rather, their self-confidence seem to make them believe that the impossible just takes a little longer	Strong
5. Seeking feedback	Entrepreneurs tend to desire constant feedback to know how well they are doing and become even quicker learners	Medium
6. Internal locus of control	The belief in oneself and the notion that the fate of the startup is within own control and influence are ubiquitous in successful entrepreneurs	Medium
7. Tolerance for ambiguity	The uncertain environment of startups means that the entrepreneur must be able to handle stress and cope with the lack of organisation and structure	Medium
8. Calculated risk taking	The ability to calculate risk in a precise way and do everything possible to get the odds in one's favour	Strong
9. Tolerance for failure	This implies that entrepreneurs regard failure as an opportunity to learn and not as a disappointment and emotional setback	Medium
10. High energy level	A heavy workload and stressful demands faced by entrepreneurs must be compensated by a high level of energy	Strong
11. Creativity and innovativeness	Creating value for customers often stem from an innovative and creative skill	Strong
12. Vision	Entrepreneurs know where they want to go and what the company should look like in the future even if this vision might not always be predetermined	Strong
13. Passion	Passion is a fundamental emotional experience for entrepreneurs and translates into a strong devotion to their work	Strong
14. Team-building	While often being strong individuals, successful entrepreneurs realise that they need to have qualified and well-motivated teams to help handle the new venture's survival and growth	Strong

Strong	Medium	Weak
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5.3.4.2 Company-wide

In conformity with Mr. Fåhraeus and his similarities with Gartner's 14 capabilities, CellaVision displays the strongest correlation with both Rangone's 3 and Betz's 10 capabilities required in technology startups. In fact, it can be argued that the company has had access to the complete array of capabilities throughout its startup years, which would also explain why the company has enjoyed such prosperity.

Rangone's (1999) first example, the innovative capability, needs no further explanation in the case of CellaVision. Ground-breaking technology that enabled a completely new market to coalesce speaks for itself. In the same way, CellaVision's production capability is evident when observing the company's ability to sell and deliver their products to customers while not losing sight of the superordinate priorities. These include, for instance, exceptional quality and meticulous reliability of the technology to identify cells comparatively or even better than lab personnel. The production capability, however, wasn't perfect from the very beginning. When CellaVision launched the DiffMaster Octavia in 2001, the product was far from finished and not even approved for clinical use. It required much effort and beta-testing before a commercially viable product was ready in 2002 (Simonsson, 2018). Lastly, CellaVision's ability to market its products

effectively, i.e. to the right customers or market, and efficiently, using an absolute minimum of resources, has been equally strong. A clearly defined set of customers was classified long before an actual product was completed and since the product was sold through distributors, CellaVision could reach their targeted market without having to spend an abundance of resources on the sales process.

Examining the capabilities presented by Betz's, CellaVision displays the complete range. It took seven years before the first revenue was generated and up to that point, CellaVision relied on venture capital, thus showing (1). (2) and (3) has already been outlined. (4) and (5) are obvious as the company has gone from 0 to 300 SEK mn in sales and 90 SEK mn in profit in 25 years. (6) has been facilitated by CellaVision's strategy to outsource all manufacturing and assembling to selected contractors. (7) is manifested in the fact that CellaVision remains the sole provider of instruments for automated microscopy after 25 years in business. Although, operating in a monopoly, CellaVision has never stopped renewing itself and the products, which has undergone major changes since the first instrument was sold in 2001. Recently, the company has ramped up its diversification efforts to gain a foothold in the market for veterinary haematology, achieved by leveraging (8). While (9) wasn't entire coherent during the company's first years, it was enabled by the recruitment of Yvonne Mårtensson. She joined the firm to transform CellaVision from a research focused one-man show led by Mr. Fåhraeus to a company with a real, marketable product (Simonsson, 2018). Finally, in light of CellaVision's history of carefully allocating resources where they make the most difference and apprehensively choosing the right markets and sales channels, one would be surprised not to find (10) accounted for as well.

Table 5.10 CellaVision's capabilities in comparison to Betz's

Betz's Capabilities	CellaVision
1. Access to venture capital	✓
2. Development of new products, new services, or a prototype	✓
3. Building product capacity	✓
4. A way to increase sales	✓
5. A way to increase profits	✓
6. Ability to expand production	✓
7. Ability to overcome the challenges of competitors	✓
8. Improvement of product quality and diversification	✓
9. The establishment of organisation and management systems	✓
10. Management of current assets	✓

5.3.5 Mapping shifts in SCA requirements

Since CellaVision's start in 1994 the company has undergone major change in many aspects. Most of the employees in addition to the management and many of the board members that joined CellaVision while still a med-tech-startup, have been replaced. Since the firm's establishment in 1994, only one senior person has remained, Mr. Fåhraeus.

This situation naturally leads to the question whether or not a shift in SCA requirements have taken place as well. The answer is not equally clear to that of the other case companies as CellaVision has had a much longer history affected to a larger extent by the changing tides of industry change, technology development and trends of digitalisation. At a more primary level, however, the answer is no. The components in CellaVision's SCA that catalysed the revenue growth in 2001 are still present today and derives from an exceptionally sophisticated technology that translates to a very user-friendly way of performing microscopy better, and more time efficiently, than humans. With basically only one product in their portfolio, the blood analyser and the appurtenant software, CellaVision provides a good example of an innovation company which has capitalised on a distinct need of their customers, using a minimum number of applications.

However, as Mr. Rihter pointed out when becoming the company's CEO in 2015, such companies can only grow as long as that need continues to be unfulfilled. "It's like driving a car: you can only drive so fast using the first gear, then you need to gear up", he commented when probed for his priorities as the new leader of the company (Nilsson, 2015). Just like Ms. Mårtensson was appointed to transform CellaVision from a startup to a company with a sellable product and proper managerial systems, Mr. Rihter got the job to diversify CellaVision's product portfolio and explore opportunities to use the company's technology in other fields or industries. The switch from Mr. Fåhraeus to Ms. Mårtensson to Mr. Rihter thus bear witness of the different strategies CellaVision has applied to leverage its SCA. From R&D and product development to establishing an organisation equipped with the right preconditions to sell to diversification - i.e. catalysing, accelerating and sustaining growth.

5.3.6 Adaption of the value proposition

When studying CellaVision, several interesting aspects from their journey toward becoming a fast-growing technology firm can be extracted. A shift related to the value proposition that has made the most impact on the firm's *modus operandi* is arguably the decision to target system integrators rather than the haematology labs and hospitals themselves. As previously described, CellaVision products

and systems only account for 10% of the exchange value when a new haematology lab is built. This did not necessarily affect the value proposition, as the core benefit, WTP, and product configurations persisted in their original forms. However, it had great effect on sales and marketing. Firstly, it enabled CellaVision to benefit from the vast marketing resources of the system integrators, instead of establishing and maintaining a salesforce on their own. Secondly, CellaVision was facing the risk of being overtaken by competitors, should they have chosen to target labs directly.

The value proposition itself was subject to a major overhaul early in CellaVision's history as well; the main hypothesis regarding the monetisation strategy had to be abandoned in favour of a more traditional monetisation strategy. As previously described, their original strategy was to market the workstation at a very competitive price, and subsequently provide disposable cuvettes with a hefty margin as per the alternate metric. This was decidedly in accordance with value proposition theory, as (1) an high upfront cost may impose psychological effects on procurers, and (2) alternate metric pricing can be successful when the metric is aligned with how customers perceive value, and this would be the case with disposable cuvettes as every cuvette used would mean another sample analysed. Thus, the labs would pay directly for analytic efficiency. However, the predicament of providing proprietary disposable cuvettes proved too large of an operational challenge for CellaVision, and it diverted focus from the core product. As costs for this solution started to mount, Mr. Fåhraeus pulled the plug, and opted for a more traditional monetising strategy. It is hard to estimate how a retention of the alternate metric pricing would have affected the revenue growth of the company; further research is required, benchmarking CellaVision with similar med-tech firms.

5.3.7 Case Summary

CellaVision is an exciting example of a firm that experienced a severe struggle, but with time recovered and was successfully able to launch and sell their product in their selected target market, and from there catalyse their growth journey. The case offers interesting insights in the various difficulties that could arise when trying to create a marketable product from avant-garde research. The success can to a large extent be accredited to Mr. Fåhraeus and his ground-breaking ideas, but the same goes for some of the difficulties encountered, such as the early decision to sell their products online, and the by the 2000's defunct monetisation strategy of disposable cuvettes.

Alleviating CellaVision's struggle was the clear lack of competitors. As of today, CellaVision does not have any competitors capable of adhering to the same high-quality standards and effectiveness,

rendering CellaVision a twenty-year head start. The company could thus afford to take the time to experiment with marketing and monetisation strategies, save for any disgruntlement from investors.

5.3.8 Predicting future developments

5.3.8.1 Strategy

In order for CellaVision to succeed with their new ventures in the veterinarian market, the market for smaller human haematology labs, and new geographical locations CellaVision might need to revisit the items in Kotter's eight steps for leading change. For example, in order not to once again experience a prolonged and painful process of marketing their product, CellaVision should investigate what barriers that are possible to break down in order to generate short-term wins. E.g. the market in South East Asia may present different hierarchical structures in the client organisations, and the same could apply to veterinarian labs. Going forward, CellaVision is likely to experience competition; they have been alone up to this point, but China and other technological and economic superpowers are increasing their efforts in reaching equivalence with respect to artificial intelligence capabilities. Taking this into account, other items in Kotter's framework may also become relevant, such as creating a new sense of urgency, in conjunction with new strategic visions and initiatives.

5.3.8.2 Resources & Capabilities

As CellaVision's CEO Mr. Rihter highlighted in the annual report from 2018, the company continues to focus on five focus areas to sustain a revenue growth > 15% during the coming years; geographical expansion, segment expansion, unique innovation, improved supply chain and developed partnerships (CellaVision, 2018). Every initiative, except for unique innovation, is highly dependent on the interaction with external stakeholders, the ability to create trust and build relationships. This disposition of the strategic agenda is likely a result of the fact that CellaVision's technology is starting to mature, which means that the company must pursue new growth opportunities separate from the ones which has taken the organisation thus far. While the innovative capabilities that catalysed the growth journey back in 2001 are still going to be profoundly relevant in order to offer the best product on the market even more so will the broader range of interpersonal skills and sales capabilities. These will be key to establish a presence in other geographical areas, penetrate segment markets, improve the supply chain and consolidate the number of subcontractors as well as developing partnerships with distributors, current- and prospective customers.

5.3.8.3 Value Proposition

CellaVision has devised several different growth strategies that differ significantly from each other. Firstly, CellaVision currently only targets large haematology labs, accounting for 15 000 of the total labs. The prospect of targeting small and medium sized labs, however, is still left unexploited. Together, account for 100 000 labs, currently employing legacy processes such as manual ocular examinations. The volumes they process in terms of blood samples do not mandate such a large commitment that a purchase of CellaVision system incorporates. In response to this, CellaVision plans to develop a new product that is marketed at a 70% discount. It is imperative that, when designing a value proposition targeted toward smaller labs, the new product does not cannibalise on the revenues from the larger systems. The product aimed toward smaller labs should have clear drawbacks, and analogously, the premium product must offer premium features that makes a difference for the larger labs. In order to succeed with this differentiation, an intensive study of customer WTP is motivated. This study will act as a decision-making foundation when selecting which features to incorporate in respective products.

Another opportunity for growth is the prospect of entering veterinarian haematology labs; as previously described, veterinarian haematology enjoys a 12% YoY growth. CellaVision has found a cost-efficient and effective way of marketing their systems to large human haematology labs, but the veterinarian market may differ in structure in terms of preferred procurement methods. Thus, CellaVision should keep its options open when selecting a distribution method, and ultimately select a distribution channel that is aligned with the needs of the veterinarian market. This, naturally, also applies when entering the new segment of smaller and mid-sized human haematology labs.

Lastly, CellaVision plans to stage their next major market entry, in the form of new offices in Shanghai and South East Asia. Whereas the scientific aspects of haematology morphology may not differ between patrons in the west and in the Far East, the healthcare system will definitely present significant differences. Even though the system operators CellaVision cooperates with enjoy a 95% market share worldwide, they may be reluctant to market CellaVision products to a completely new market, where product awareness is significantly lower. It may be advisable to launch a concurrent marketing effort targeted toward SE Asia, in order to create market pull effects.

Growth prospects aside, CellaVision will in the immediate future have to revisit their value proposition, in order to address the transition from early adopters to the early majority. No changes may be necessary, but current value proposition theory suggest it may be advisable to conduct a specific WTP investigation for the new segment.

5.4 Analysis Summary

With the factors of revenue growth - strategy, resources and capabilities and value proposition - analysed, there is now enough material to extract the secret sauce of achieving the actual growth. In the same way that businesses differ however, there is no single way to succeed. Different business models require different sets of the above-mentioned components and there are multiple ways, as can be observed among the case companies, to in the end generate what strategists and corporate leaders like to refer to as a “hockey stick growth curve”.

5.4.1 Strategy

Across the three case companies, the choice of market entry has differed altogether. While NEAB and CellaVision have demonstrated greater success than Eliq, there is not enough evidence to suggest that (1) or (2) would yield any better odds of success than (3) or (4) for example. Rather, it seems as if the more critical factor regards the consensus of opinion within the company and the long-term coherency of choosing a specific strategy and sticking with it over time. Staying focused as NEAB and CellaVision thus appears to trump the jittery attitude of Eliq, which hitherto have had a hard time defining a clear market segment. In addition, there is the issue of causation and correlation. The choice of market entry seems to be an effect of the particular customer need and what solutions that currently exist to fill it and not an explicit declaration to pursue a specific strategy. Mr. Fähræus, for example, realised that there was no solution for automated microscopy in blood analysis, and thus his only choice was to create that market.

While (1), (3) and (4) all involves the entry of an existing market with more or less defined customers, (2) does not. As Mr. Blank lays out, businesses that attempt to create new markets must be ready to tolerate years of losses before an eventual breakthrough. This thesis confirms Mr. Blank’s theory as it took CellaVision seven years to sell their first instrument, while NEAB and Eliq achieved the same mission in zero and two years respectively. On the flip side, once a market indeed has been created, it appears as if growth can be accelerated and sustained for much longer; CellaVision has increased sales for 18 years in a row.

Table 5.11 Comparison of market entry strategies

Company	Market Entry			
	(1)	(2)	(3)	(4)
NEAB	✓			
Eliq				✓
CellaVision		✓		

When analysing the selected companies, a number of discernible differences stand out, but also similarities. First of all, it is evident that a guiding coalition is imperative for creating a startup fit for achieving growth - all studied firms had a competent, ambitious, and target-oriented group of people dedicated to turn the business ideas into reality. Almost as a consequence, a strategic vision and initiatives could be identified at all studied firms; these were in effect the outputs of the guiding coalition. Two deviations are however apparent for Eliq; the lack of a sense of urgency and a volunteer army. The complacent attitude of Eliq in terms of their value proposition counteracted any sense of urgency, and no volunteer army was present to do the grunt work; this was carried out by the guiding coalition.

Comparing NEAB and CellaVision, the only differences are CellaVision's lack of barrier-removal and short-term wins. Whereas Mr. Jacobson was expedient in taking a more recessive role in the firm, Mr. Fåhraeus had a more active role - this might have contributed to the deficient strategies concerning the online marketing and cuvettes. CellaVision's lack of short-term wins almost brought the whole company down; the period short after the discontinuation of the cuvette solution was dubbed a "death march".

Table 5.12 Comparison of processes for leading change

The eight-step process for leading change	NEAB	Eliq	CellaVision
1. Create a Sense of Urgency	✓		✓
2. Build a Guiding Coalition	✓	✓	✓
3. Form a Strategic Vision and Initiatives	✓	✓	✓
4. Enlist a Volunteer Army	✓		✓
5. Enable Action by Removing Barriers	✓		
6. Generate Short-Term Wins	✓		
7. Sustain Acceleration	✓		✓
8. Institute Change			

5.4.2 Resources & Capabilities

In order to create the best preconditions for growth, there has to be a mix of the right resources and capabilities in the company. For technology startups this is the equivalent of assembling the right team of people with enough financial capital to embark on the entrepreneurial journey. Throughout the case studies, all interviewees have, time and again, returned to the significance of finding and retaining the right people - engineers, sales professionals, developers, and managers. As Collins (2001) suggests, this is imperative in order for the people to stand a higher chance of overcoming the obstacles that startups often face in their first years when the direction of the organisation may take sharp, irregular turns. In such turbulent times,

there is also a risk, notably among novice entrepreneurs, to lose sight of the customer and market, which always should act as the guiding beacon for the startup. This is clear when observing Eliq and the company's past struggles in finding the right place in the market during the years 2010-2015. At the time, all founders had limited experience from the entrepreneurial world and had a hard time converting their efforts into actual sales figures. The CellaVision team experienced similar problems during the company's early years and it wasn't until 2001 that sales took off. Some of their adversities, as before stated, can be explained by the choice of market type, where CellaVision and Eliq, as opposed to NEAB, entered a completely new market and thus neither had a verified value proposition nor a distinct set of customers to offer it to. Regardless of market challenges, there is an undeniable need for entrepreneurs and the startup team to possess stamina and motivation that, as Collins puts it, comes from an inner drive to produce the best results and to be part of creating something great, regardless of external pressure. Truly, this is the case with Mr. Jacobson who compared himself to a competitive athlete having refined his skills for over 20 years prior to founding NEAB. Likewise, Mr. Fåhraeus credited his competitiveness and curiosity as reasons for his success. By observing Table 5.13 which depicts a comparison of characteristics among the studied entrepreneurs, it's clear that also Mr. Botha possess this quality.

While these traits can be variously strong among different individuals, there seems to be a correlation with distinguished entrepreneurs, not just in this thesis but also when looking within the wider context. Countless of studies, which the scope of this thesis is too narrow to include, have underlined the importance of grit - the trait of not giving up - as one of the keys to success in any field, a quality which also personifies many of the great entrepreneurs of our time (Agarwal, 2019).

Table 5.13 Comparison of characteristics among the studied entrepreneurs

Characteristics	Description	Mr. Jacobsson	Mr. Botha	Dr. Fähræus
1. Determination and perseverance	More than any other aspect, total dedication to success and focus on advantage can overcome obstacles and setbacks.	Strong	Medium	Weak
2. Drive to achieve	Entrepreneurs are generally internally driven by a strong desire to compete and excel against self-imposed standards.	Strong	Medium	Weak
3. Opportunity orientation	The constant awareness of opportunities that exist in the everyday life tend to be the entrepreneurs focus rather than resources, structure or strategy.	Strong	Medium	Weak
4. Persistent problem solving	Successful entrepreneurs do not fear difficult situations. Rather, their self-confidence seem to make them believe that the impossible just takes a little longer.	Strong	Medium	Weak
5. Seeking feedback	Entrepreneurs tend to desire constant feedback to know how well they are doing and become even quicker learners.	Strong	Medium	Weak
6. Internal locus of control	The belief in oneself and the notion that the fate of the startup is within own control and influence are ubiquitous in successful entrepreneurs.	Strong	Medium	Weak
7. Tolerance for ambiguity	The uncertain environment of startups means that the entrepreneur must be able to handle stress and cope with the lack of organisation and structure.	Strong	Medium	Weak
8. Calculated risk taking	The ability to calculate risk in a precise way and do everything possible to get the odds in one's favour.	Strong	Medium	Weak
9. Tolerance for failure	This implies that entrepreneurs regard failure as an opportunity to learn and not as a disappointment and emotional setback.	Strong	Medium	Weak
10. High energy level	A heavy workload and stressful demands faced by entrepreneurs must be compensated by a high level of energy.	Strong	Medium	Weak
11. Creativity and innovativeness	Creating value for customers often stem from an innovative and creative skill.	Strong	Medium	Weak
12. Vision	Entrepreneurs know where they want to go and what the company should look like in the future even if this vision might not always be predetermined.	Strong	Medium	Weak
13. Passion	Passion is a fundamental emotional experience for entrepreneurs and translates into a strong devotion to their work.	Strong	Medium	Weak
14. Team-building	While often being strong individuals, successful entrepreneurs realise that they need to have qualified and well-motivated teams to help handle the new venture's survival and growth.	Strong	Medium	Weak

Whereas the entrepreneur different traits are difficult to influence, the characteristics of other employees are indeed adjustable provided that they are picked on the basis of their competencies. Most favourably, these employees should complement the entrepreneur's weaknesses to make sure that the whole plethora of capabilities, imperative to growth, are present in the startup. Subsequently, the question becomes - what are those capabilities? While the theory presented by Gilbert and Davis suggest that sales capabilities are crucial in order to deliver value to the customer, NEAB proves that it must not always be the case. The mantra of creating something unique and so good that the product will sell itself appears to be an equally effective manner and even superior in the sense that it unlocks capacity to focus on developing other, value-creating features. As long as the customers actively seek to handle the value delivery themselves, growth can accelerate. However, as the case with NEAB demonstrates, companies which operate in new markets under practically monopolistic conditions sooner or later fall foul of increased competition, which risks impeding the opportunities for continued expansion. If and when NEAB and CellaVision encounter the same destiny remains to be seen, although there are

limited examples of firms that enjoy the benefits of monopolies for a prolonged period of time.

In stark contrast to NEAB stands Eliq, which is profoundly dependent on the company's sales capabilities to convince prospective customers of the value of implementing the customer engagement platform. This predicament, arising both from the utilities' history of sluggishness as well as their bureaucratic decision chains, has forced the company to institute an extensive sales department and consult senior advisors within the utilities industry to convey a more senior image and increase momentum in negotiations. As the direct impact of the customer engagement platform on the utilities profit is not as evident as with NEAB's NEXT and CellaVision's digital blood analysis, it is reasonable to believe that the sales process requires more convincing arguments and greater effort to overcome their decision threshold. To conclude, the required level of sophistication with respect to sales capabilities depends greatly on the characteristics and strength of the startups' value proposition.

Sales capabilities aside, there are numerous indications, both from theory and empirics, that the art of creating value for customers in technology startups emerge from its ability to produce IP of high quality, i.e. innovative capabilities. Such IP, at least in software-centric startups, involves sophisticated knowledge of computer science or similar in some way. The entrepreneur or employee who possess these skills do not necessarily have to be the originator of the business idea or even conceptually knowledgeable about the final product. As long as he or she has an ability to interpret the ideas of the visionary into code and ultimately a final product, there is an equal value to the startup. Although theory advocates the benefit of patenting such IP, the case companies demonstrate that while it might be relevant in some cases, e.g. hardware-centric businesses, it is not a prerequisite in terms of software. The reasons for this are twofold. First, software is difficult to patent since the patenting process requires a publication of the code itself, essentially revealing the algorithms which the originator strived to protect in the first place. Second, there are often many ways to solve the same problem using different algorithms which means that if some other entrepreneur(s) want to establish a similar business, he or she can usually find another way to create the same kind of platform without infringing on or exploiting the IP of a competitor. This does not, by any means, imply that software-centric startups should not protect its IP, only that there are more efficient ways, such as having robust and impenetrable IT-systems, to do it.

Examining the observed capabilities among the case companies, it is clear that (2) is the quintessence of a technology startup as it is present across all three companies. While there are thousands of technology startups that manage to develop new products, however, only a handful

of them become successful. The difference between Eliq on the one hand and NEAB and CellaVision on the other, is the development of the product. NEAB carefully evaluated the customer need before developing the product while CellaVision created such high barriers of entry that once customers were convinced about the product's benefits, they were practically the only company on the market. Contrarily, Eliq had neither of these attributes which resulted in a trivial energy meter which was neither the result of a distinct customer need nor endowed with a powerful barrier of entry and difficult-to-imitate attributes.

Table 5.14 Comparison of capabilities

Betz (1998)	NEAB	Eliq AB	CellaVision
(1) Access to venture capital		✓	✓
(2) Development of new products, new services, or a prototype	✓	✓	✓
(3) Building product capacity			✓
(4) A way to increase sales	✓		✓
(5) A way to increase profits	✓		✓
(6) Ability to expand production			✓
(7) Ability to overcome the challenges of competitors			✓
(8) Improvement of product quality and diversification		✓	✓
(9) The establishment of organisation and management systems	✓	✓	✓
(10) Management of current assets	✓		✓

5.4.3 Value Proposition

As previously discussed in the theoretical chapter, the value proposition must be thoroughly anchored in the chosen market segments' WTP and adapted according to the diffusion maturity of the innovation. The investigated companies have chosen widely different approaches for achieving their sales growth but share common themes for their value proposition; an identified target market, a researched willingness-to-pay, and clear monetisation strategies.

When comparing the core benefits of the three investigated firms, it is evident that for NEAB and CellaVision, the core benefit (and thus the WTP) is highly linked with tangible cost savings as resources can be freed with immediate effect. However, for Eliq, the case is more convoluted. The core benefit of Eliq's product aspires to affect the top line for the client by reducing customer churn and attract new consumers. The associated ROI model guiding the sales process is by consequence more speculative, as consumer preferences and decisions are much harder to model and predict, than the workflow in highly controlled processes such as construction and cell analysis. This predicament could serve as a part of the explanation of why Eliq hasn't enjoyed the same rate of growth as the other two investigated firms.

The actual products (or the leader features) for the studied firms are similar to a certain degree; all revolve around the provision of software that catalogues, presents, or analyses information. Even though CellaVision provides hardware, this is hardly the focus of the firm. However, when studying the filler features, Eliq stands out as an outsider. While NEAB and CellaVision provide additional software for analytics, that is clearly discernible from the main product, Eliq's customisation of their white label software can potentially be viewed as their filler product, but only with a stretch. In fact, the white label software is hard to implement without a degree of customisation. It can be argued that Eliq lacks a marketable filler feature, thus leaving money on the table for utilities interested in opting for a more premium service to provide to their consumers.

The augmented products consist of features related to the service and support of the actual product, but also features derived from the filler, killer, and add-on groups. All studied firms provide some kind of software support. NEAB and Eliq also provides professional-grade services, such as client advisory (NEAB) and customisation of the software (Eliq). As previously mentioned, NEAB is reluctant to market their advisory services, as they are not connected to their core competence.

Three levels of product			
	NEAB	Eliq	CellaVision
Core Benefit	Increased efficiency	Improved customer loyalty	Reduce manual work needed to identify illness in blood samples
	Reduced risk	Improved customer intelligence	
	Improved control		
Actual Product	SaaS-solution that digitalises processes	White label software	Hardware/Software solution built with artificial neural networks IoT Solutions Additional software
	Advisory	Technical Support	Hardware replacement
	Technical support	Customisation of software	Software updates
Augmented Product	Add-on services		

Figure 5.18 Three levels of product for all companies, concatenated

		Expected Adoption		Perceived Value	
		High	Low	Low	High
NEAB	High	Fillers		Leaders	
Eliq		Analysis Tools	Customisation	Analysis Tools	Customisation
CellaVision		Examination SW	Examination SW	Cell identification HW/SW	Cell identification HW/SW
NEAB	Low	Killers		Addons	
Eliq		Advisory	AI-driven analytics	Additional Modules	Physical displays
CellaVision		Empl. Evaluation SW	Empl. Evaluation SW	IoT Communication	IoT Communication
		Low		High	

Figure 5.19 Comparison of killers, fillers, addons and leaders

6 Conclusion

The conclusion is based on the analysis conducted in the previous section, which applies the theories outlined primarily in the theoretical framework onto the collected empirics. In the following sections, the conclusion is presented in a ternary format congruent to the essay as a whole – Strategy, Resources & Capabilities, and Value Proposition.

6.1 Establish a guiding coalition that provides strategic direction

To begin with, the market entry strategy a startup chooses to pursue is first and foremost a result of the characteristics of its value proposition and not naturally an explicit strategy in itself. Regardless of what the ultimate market entry strategy looks like, the one thing that matters most is to choose a specific strategy and then patiently stick with it - minimising the risk of costly and timely strategy transformations.

However, a startup organisation is in many ways also different from larger, professional organisations in terms of experience, size, and maturity; but also in terms of bureaucracy, rigidity, and level of bias towards customers. However, the need for a guiding coalition is constant, regardless of the organisation is a small startup or a large multinational corporation (which Kotter's work is based upon). This coalition formulates, or provides input on, the strategic vision that is used to steer the startup in the competitive landscape. This coalition can consist of venture capitalists, senior advisors, consultants, or even people from academia. The presence of a strategic direction, preferably conceived in cooperation with a guiding coalition, can also provide with means to attract a voluntary army, that may prove vital when effectuating the work associated with bringing the strategic vision to reality.

6.2 Find and retain the right people

Secondly, the resources in a technology startups revolve more around its people than its technology. For that reason, they should put great emphasis on finding and retaining the right people in order to accelerate growth. The most important aspect when configuring teams is to have at least one person present with the ability to identify a strong unfulfilled need in a market or specific customer segment and have a conceptual idea of a feasible service or product that can serve that demand. Most favourably, that need should, based on the three investigated case companies, be self-experienced during a longer period of time. This will entail a lower risk for the startup to accidentally go off on a tangent and lose sight of the important market

focus. In addition, there has to be a presence of innovative and technical capabilities in order to translate that need into a product or service with enough innovative height to create difficult-to-imitate attributes. Since startups are seldom a one-man-show, the entrepreneur should early on be aware of the other capabilities that will be required to scale the organisation. The constellation of these capabilities tends to vary across startups and seem to be rooted in the design of the value proposition. For example, value propositions that target costs instead of revenue seem to have an advantage with respect to the level of sales capabilities required.

Moreover, a successful entrepreneur or creator of the business idea does not necessarily stand or fall with earlier experiences from the startup scene. Instead, the entrepreneur's characteristics appear to be more influential, most notably his or her contemptuousness to failure and *drive to achieve*. This thesis does however support the conviction that prior experience can facilitate the acquisition of resources and shorten the time to market – primarily through the use of an already established network. The network is also influential in establishing a voluntary army.

6.3 Design a product offering that provides value

Lastly, in order to be able to sell the product or service in question, the product-market fit must be adequate. To ensure that a product-market fit can be constructed, a sequential process should be adhered to;

1. Research the target market to gain insights of feature preferences and WTP
2. Segment the market with aspect to WTP
3. Develop and configure a product or service that satisfies the chosen segments' preferences

When encountering changes in the market, or when new technology is readily available, the process should be reiterated.

When researching the target market, the entrepreneur has a clear strategic advantage if he or she has previous experience of working in the field in question. If that is not the case, the entrepreneur should use available contacts within the market to build an understanding of the customers preferences. The objective of the research is to determine the WTP for the different features in the market. In the next step, the market is divided into segments. The collected information enables the startup firm to construct differentiated marketing strategies for every segment. The strategies can entail a completely different value proposition, adaptations to distribution channels, or simply an alteration to the marketing message.

Even if there are limited possibilities of customising the product or service to fulfil different segments' preferences, the product or service may be augmentable with filler features, complemented with addons, or paired with warranty offers to enhance the WTP, extend product functionality, and lower thresholds respectively.

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7 Contribution and remarks

7.1 Contribution to academia

There is a lot of written material on the subject of startups. This thesis aims to reinforce, extend, and bridge the gaps in different areas.

1. There is a low amount of research on how startups should organise themselves in order to maximise their possibility of success. Accordingly, this thesis aims to partly fill that gap by exploring how Kotter's theories can be applied to a very immature organisation, i.e. a startup.
2. As opposed to mature companies, startups in general are more dependent on their leader i.e. entrepreneur and his or her characteristics. This thesis combines different theories to evaluate which characteristics are most important. In addition, it seeks to determine the company-specific capabilities that are required for revenue growth.
3. Lastly, this thesis aims to apply avant-garde theories from the private sector in conjunction with legacy theories in order to derive the most effective methodology for designing a value proposition.

7.2 Contribution to private sector

As discussed in the introductory chapter, SMEs are facing difficulties in realising their growth targets. These firms account for 99,9% of the firms in Sweden, and a subset of these can be labelled as startups. For startups, the realisation of growth target can often translate to the short-term survival of the firm - venture backers may not have the same patience as institutional stakeholders holding equity in mature firms. This thesis contributes to the prioritisation process entrepreneurs and startup organisations undertakes when deciding upon a growth strategy. All startups will, at some point, tackle issues relating to organisation, resources & capabilities, and value proposition; this thesis may act as first step when building a knowledge foundation for how these issues may be resolved.

7.3 Final remarks

A master thesis, as the one in front of the reader, is the final deliverable in the Master of Science degree in Industrial Engineering and Management. In Sweden, this degree yields the diploma *Civilingenjör*. While the work of a master thesis is conducted in a highly academic setting, its objectives may be formulated in a joint agreement with a host company. The objectives of this thesis were formulated in

agreement with Production Management, Faculty of Engineering, Lund University, hence no influence from third parties were present.

Being undertaken in an academic setting, discrepancies in its conclusions with aspect to the predominant practices in the private sector is unavoidable, but by no means unsolicited. Rather, this thesis offers a differentiated point of view stemming from academia, and may serve as inspiration for entrepreneurs, business leaders, and intellectuals alike.

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Appendix

Interview Questions

The company is denoted by XX

Introductory information

1. The interviewers
2. The project
3. The purpose of the interview
4. The interview process

Basic information about the company

5. How would you describe company XX today?
6. Why was it founded?
7. What are the business areas?
8. What is the revenue?
9. How many people does XX employ?

The entrepreneur

10. Would you like to tell us a bit about yourself and your career so far?
11. What is your formal education?
12. How familiar were you with startup ventures prior to the launch of the startup?
13. How would you have described your network at the time?
14. What are the most important personal qualities that explain your success?
15. What motivates you?

Value Proposition

15. Tell me about the product offered by XX.
16. What is XX's target market(s), and why?
17. What is XX's value proposition to this market?
18. What is XX's segmentation strategy?
19. How does the value proposition differ between these segments?
20. Has XX throughout the journey encountered any inertia from the customers when marketing a technology solution? If yes, how was this rectified?
21. How does XX's marketing differ when targeting innovators/early adopters vs majority/laggards?

Resources & capabilities

Resources

22. Tell us about the resources in XX – which are the most important?
23. Has there been any change in importance of certain resources?
24. How did XX mainly acquire resources such as IP, competence, and reputation?

Capabilities

25. What are the most important capabilities at XX?
26. Has there been any change in importance of certain capabilities?
27. Which capabilities were valued initially compared to now?
28. How did XX mainly acquire capabilities such as innovation, sales, and leadership capabilities?

General

29. How do XX's capabilities stay relevant in a business environment which is changing at an ever-increasing speed?
30. What significance did your network have in order to acquire the R&C?
31. To what extent was the building and acquisitions of R&C planned (proactive) and how much was reactive?
32. What critical events have occurred throughout the history of XX?

Final questions

33. Is there anything you would like to add that we haven't discussed?
34. May we contact you if we have any further questions?
35. Do you have any public documents we can access?
(Example: annual reports, policies or other information about the company).

