Aalto University
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STRATEGY & MCS IN START-UPS – CASE STUDY

Using Simons' Levers of Control -framework to better implement strategy for an early-stage start-up company working to innovate in the field of health technology

Bachelor's Thesis

Erika Remahl

Aalto University School of Business

Accounting

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Aalto University School of Business

Aalto University, P.O. BOX 11000, 00076 AALTO

www.aalto.fi

Abstract of Bachelor's thesis

Author Erika Remahl	
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Abstract

This study highlights the previous literature's findings on the relationship between strategy and management control systems. Through the use of Simons' levers of control -framework the relationship is studied further. The framework aims to balance control in the age of creative value creation. The framework is implemented as a case study for an early-stage start-up company whose mission is to create life-saving technology in the health technology field. This study finds that the implementation of control systems adds value, enables growth, and aids in risk management for start-up companies.

Keywords strategy, management control systems, levers of control

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Abbreviations

LOC	Levers of Control
MCS	Management Control Systems

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1. Introduction

In this bachelor's thesis I will be doing a case study of an early-stage start-up company working in the field of health technology. The subject of the study will be the use of Simons' Levers of Control (Simons, 1995) to better understand all the aspects of strategy and control. The framework aims to help modern business management teams to balance their employees' creativity and control systems.

This framework suits the case company well in the sense that a start-up company creating a new product combining different technology needs all the creativity and initiative of the employees to create value and competitive advantages for the company. However, the field of health technology, like other healthcare fields, is extremely regulated and controlled by laws and quality control. When operating in such a field, control cannot be forgotten.

Malmi and Brown (2008) in their article identify the need for case studies inside the literature of MCS as frameworks begin to form around management control systems. However, the research opportunities they see concern larger companies and big data around complex control systems. While, this is not the case of my thesis, consisting of one company and one framework, it nevertheless shows that this area of research benefits from further research.

Additionally, in their article concerning management control systems and strategy Tucker, Thorne, and Gurd (2009) looking at the history of the literature, they have identified future research opportunities, one of which is the role of Simons' Levers of Control. What is more, this study will greatly benefit the case company by highlighting the need and value of implementing control systems in a way that allows employees to generate value better. Likewise, this study can benefit other companies and management teams that have found themselves in a similar situation.

This thesis aims to shed light on the relationship between strategy and control systems and provide a case example of how the idea of control systems was adopted in an early-stage start-up. As it turns out in the *3.3 Diagnostic control systems*, when traditional key targets are unavailable, new and unconventional ways of thinking about key targets outside of revenue or market share emerge.

The structure of the thesis is a case study with a literature review background part supporting the theory and concepts used in the main research part of the thesis. These key concepts include strategy formulation and implementation, management control systems, and Simons' Levers of Control.

The thesis will start from the literature review looking at strategy, management control systems, and combining the two. After that, we will take a closer look at the framework and the strategy of the case company. After that, the case study focuses on the implementation of the framework. Ending will conclude the findings of this thesis.

2. Background

Firstly, we must define what is strategy and how the definition is used in this study. Secondly, we will take a closer look at management control systems, what they are and how they have been used in business management over the past decades. Lastly, we will have come to understand why it is beneficial to combine the two. This will be done by looking at the relevant literature and definitions of the key concepts.

What is more, in order to include all four variables of strategy and control in Simons' LOC framework (Simons, 1995), the analysis of the variables is fairly surface level. This is a choice made bearing in mind that the framework is meant to be used in full. By doing this, the variables complement each other and provide adequate balance to the case company's strategy.

2.1 Strategy

Strategy has been commonly understood in the business world as a general plan to achieve long-term goals under uncertainty. Porter (1996), a well-known author in the literature of strategy, has said the following: "Strategy is the creation of a unique and valuable position, involving different set of activities." Undoubtedly, strategy is not a one-size fits all solution, because the circumstances and the aims of companies vary greatly. Through their actions, companies aim to achieve unique positions with competitive advantages. (Porter, 1996)

In their research Ali et al. (2020), among others, divide strategy into two phases: formulation and implementation. Strategy formulation can be seen as "articulation of strategy or how strategy is formed". Strategy formulation plays a significant role in how management identify major problems, find alternative solutions, and choose appropriate strategies (Andersen, 2004).

Nonetheless, after the strategy has been formulated, it needs to be implemented. Tawse, Patrick, and Vera (2019) wrote in their study that "strategy implementation takes more cognitive effort and is more emotionally draining." It is then no wonder why top managers tend to put effort to the formulation of strategy but forget the "problem-solving complexity of strategy implementation".

Meanwhile, the interaction and relationship between strategy and start-ups has been studied by Gans, Scott and Stern (2018). They have identified that a problem with entrepreneurs and start-up companies is that they often go with the first strategy to cross their minds in effort to reach markets as fast as possible. Furthermore, the endless range of possibilities seem overwhelming. This, however, leads to entrepreneurs using inferior strategies in fear of wasting time.

To solve this issue, Gans, Scott and Stern (2018) offer their own framework as a tool to help managers spend more effort in choosing a well-thought-out strategy that best suits their company's values and mission. It is important to note, however, that the key finding is not to use one specific framework, but rather the idea that strategy formulation and implementation must be taken into better consideration among start-up management.

2.2 Management Control Systems (MCS)

Simons in his article (1987) describes management control systems as "formal, information-based routines and procedures used by managers to maintain or alter patterns in organizational activities." Management control systems provide management teams with financial and non-financial information. With this information, management team can better understand and organize their company. (Samagaio, Crespo and Rodrigues, 2018)

Meanwhile, in their research Malmi and Brown (2008) study management control systems as a package, because different components of MCS are not isolated from each other, but rather form a broader control system (Chenhall, 2003). Malmi and Brown (2008) discuss the different definitions of MCS in previous literature. They suggest that any attempt by managers to direct employee behaviour outside of simple rules, should be considered as management control systems. They divide the MCS into 5 different categories.

Furthermore, previous literature has studied the relationship between MCS and start-up companies. In their article Samagaio, Crespo, and Rodrigues (2018) studied the use of management control systems in high-tech start-ups. They discussed multiple studies (Greiner, 1997; Lin, Chen, and Lin, 2017) that have concluded that management control systems enable growth in start-up companies.

In the same way, as they studied management control system valuation in start-up companies, Davila, Foster, and Jia, (2015) came to the conclusion that "financiers of start-up companies believe formal MCSs lead to better decisions or that they signal firm quality and future growth potential", this is translated to higher company valuation.

Davila and Foster (2007) additionally studied the MCS in early-stage start-ups. They found that start-up companies adopt different MCS in different phases of their company development. Financial planning management control systems were among the first ones to be implemented, followed by HR and strategic planning systems. They also recognised that MCS are relevant to the growth of the early-stage start-up companies.

What Davila and Foster (2007) also concluded was the fact that "An informal approach to managing organizations becomes harder when they grow beyond a certain size." What is more, they identified an alternative role of MCS as controlling risks and avoiding "major catastrophes that may lead to company failure."

In summary, clearly MCS are vital to not only to complex international companies, but also to the growth, valuation, and risk management of start-ups.

2.3 MCS and Strategy

After having defined both strategy and management control systems, we can next begin to understand how they work together and add value to business management. Previous literature such as Samagaio, Crespo and Rodrigues (2018) and Sandino (2007) have identified strategy as a crucial part of management control systems.

Not only is it so that strategy and management control systems must align to achieve best outcomes, but management control systems play a vital role in formulating and implementing strategy (Samagaio, Crespo and Rodrigues, 2018). What is more, Davila, Foster, and Jia (2015) came to the finding that management control systems that implement strategy, are seen by equity financier as more important and valuable than other management control systems.

Management controls systems and strategy has been successfully combined by Simons' Levers of Control (Simons, 1995) framework. It is a strategic management tool that describes the relationship between strategy and control. It has four key strategic variables (levers): core values, risks to be avoided, strategic uncertainties and critical performance variables. For the framework to be complete, these four key strategic variables have four matching control types: beliefs systems, boundary systems, interactive control systems, and diagnostic control systems (Simons, 1995).

2.3.1 Simons Levers of Control

Simons' LOC framework (Simons, 1995) aims to combine strategy and control. What is more, Simons argues that the four variables of strategy are essential to achieving successful business strategy. Often, to their own detriment, management teams are focused on the numerical part of critical performance variables but forget what else contributes to a successful strategy.

Other critical part of the research is the idea of how management can maintain control in a business environment that demands creativity and initiative from employees. This individuality and demand for employee initiative began to flourish in the 90s. Employee's creativity and seeking opportunities is at the heart of today's business development by creating new revenue and opportunities in highly competitive fields. However, this freedom, when given full autonomy, can be detrimental. Some actions made by the employees and pursuing certain activities can expose businesses to unwanted, and excessive risk or damage the company's integrity. (Simons, 1995)

Naturally, business management teams are then faced with the dilemma of how to maintain control without crushing the creativity or micromanaging their employees every move. Not that this would even be possible due to management team's limited resources and other obligations. Solving this problem by simply hiring only good people and hoping for the best is not realistic. Similarly, returning to the very hierarchical way of thinking about control when in the 50s and 60s control was seen as managers telling employees everything they needed to do or what not to do, is not ideal.

Understandably, control and boundary systems are evermore critical in fields, where standardization is critical or when the risk of theft is high, and when quality and safety are essential. Examples of these kind of fields include assembly lines, casinos, and nuclear plants. (Simons, 1995)
Undoubtedly, the same could be argued for the case company operating in healthcare technology field where research and development must be extremely reliable and accurate and in accordance

with up-to-date regulations and laws. But at the same time, developing new products and combining technologies into a working end result demands utmost creativity and initiative from the employees.

For this reason, Simons proposes the following tools to balance creativity and control: 1. Diagnostic control systems, 2. Beliefs systems, 3. Boundary systems, and 4. Interactive control systems. Each of these levers has a purpose and are not to be overlooked. Together these levers provide management teams with tools to achieve competitive advantages in a competitive business environment without forgetting control. (Simons, 1995)

Simons has developed a strategic management tool that aims to balance control and creativity of the employees. The table below demonstrates the relationship between the strategy variables and their matching control systems.

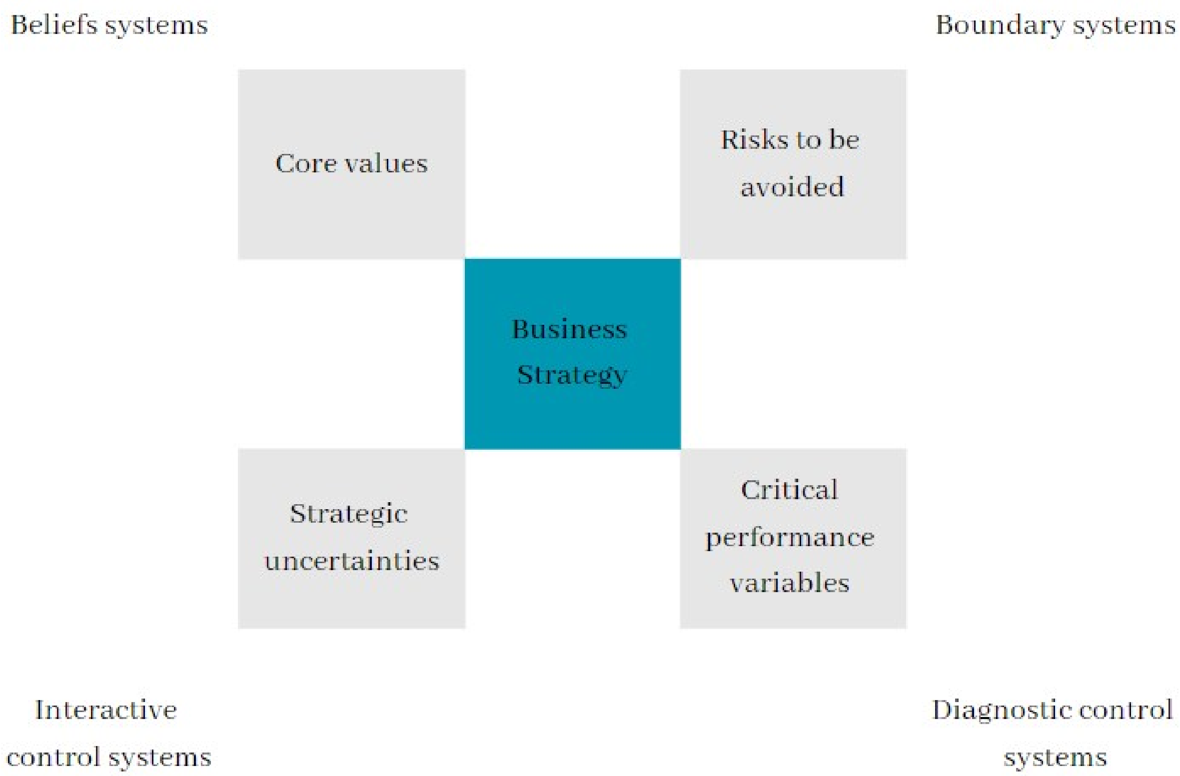

Table 1: Simons' Levers of Control - Framework (Simons, 1995)

The following diagram helps readers form a clearer and more cohesive idea of the framework and its goals. The diagram has been copied from the Simons' article (Simons, 1995) and it is titled "*Harness Employees' Creativity with the Four Levers of Control*".

The Four Levers of Control			
Potential	Organizational Blocks	Managerial Solution	Central Lever
To contribute	Uncertainty about purpose	Communicate core values and mission	Beliefs systems
To do right	Pressure or temptation	Specify and enforce rules of the game	Boundary systems
To achieve	Lack of focus or of resources	Build and support clear targets	Diagnostic control systems
To create	Lack of opportunity or fear of risk	Open organizational dialogue to encourage learning	Interactive control systems

Table 1: "Harness Employees' Creativity With The Four Levers of Control" (Simons, 1995)

2.4 Research question

The aim of this study is to answer the following research question: "How can Simons' Levers of Control -framework be used to add value for an early-stage start-up company?" The framework is designed especially to bigger international companies in need of more formal control systems to keep employees in line, but at the same time encourage creativity and innovation. To then take this framework and use it to enhance the strategy of an early-stage start-up company seems strange.

However, this is an opportunity to create new value for the company and help them manage their growth over the next few years.

Control and creativity can co-exist in the modern business world. Combining strategy and control systems both enriches the idea of strategy as a multidimensional entity and enforces control systems that support and enable the execution of said strategy. Much of management control systems research has focused on bigger companies and the introduction of management control systems to start-ups hasn't explored the possibility of using the Simons' LOC framework (Simons, 1995).

3. Case study

The case company I have had the opportunity to work with in this study is a fairly new start-up, currently in its early-stages of gathering funding and doing medical research for the new healthcare technology they are developing.

Their team consists of a few healthcare and technology experts and business professionals. Together they are working to create lifesaving technology that has the potential to not only change lives of the patients, but also ease the workload of the healthcare workers.

For the purposes of this bachelor's thesis the case company has decided to remain anonymous in order to maintain competitive advantage and not showcase their strategy to the public eye. For the study and findings of this research paper, however, this makes no difference.

The company plans to develop a finished product and enter markets in Europe, Asia, and North America. To support their technology, they are developing an application with essential knowledge and tools to help patients. Revenue from an application supporting their product can be expected in the upcoming couple of years.

With the finished product and application, they plan to exit and sell the company or merge into a bigger healthcare manufacturing company. This stage of the company's life cycle can be expected in ten years of time.

I have now described the overall strategy and mission of the case company. However, for the purposes of this study, we will look more closely at their business actions and strategy in the upcoming parts of the thesis.

3.1 Research method

For this thesis the research method I have chosen is a case study through qualitative interview data. I have conducted individual interviews with the management team as well as a group session with the whole team present. These interviews were held remotely over Microsoft Teams.

I have chosen this particular case company because it is in its early stages of development, and it can benefit greatly from this study. In addition, this use of Simons' LOC for a start-up company like this one is a fairly untouched area of literature. Some literature can be found from adaptation of management control systems in high-tech start-ups, for example the article written by Samagaio, Crespo and Rodrigues (2018).

Additionally, I believe that the opportunity to showcase a modern way of thinking about strategy and control for start-up companies through an example is an effortless way to understand the theory and follow the use of a not-so-well-known strategy framework. Qualitative research method combined with the literature background complement each other nicely.

3.1.1 Limitations of the study

Nonetheless, Simons used a large international construction company as an example in his article (1995). It is crucial to bear in mind, however, that a large multinational company differs greatly from the case company and from start-up companies all together. Bigger the company, more unaware the top management becomes from the everyday work of the employees. In that situation, control systems are ever more needed. Like Simons wrote "As organizations become more complex, managers will inevitably deal with […] decreasing time and attention." (Simons, 1995).

However, in start-up companies, management teams and employees are more intertwined – often they are the same people. And even when they are not the same people, and more people have been hired to work under the top management, people often work closely with each other. In these circumstances it can be very tempting to overlook the need for official control systems. As Davila and Foster (2007) explain in their article management control systems (MCS) "are adopted to overcome the limitations of informal management styles that require constant personal interaction." Management control systems are often adopted to facilitate growth. (Davila and Foster, 2007)

Now, when we look at these factors it can become quite clear that a study based only on literature review as a research method might not provide enough reliable and meaningful data in the field of healthcare technology. Especially not in a study that is the size of a bachelor's thesis.

Nonetheless, this research method comes with limitations that are important to keep in mind. These limitations include the bias of the informants. As a third-party interviewer, I have no way of proofing the data I have gathered, or the true opinions of the people involved.

Some of this pressure can be alleviated through one-on-one interviews, where employees can speak their mind more freely. On the other hand, the group interview gave an opportunity to brainstorm and come up with more creative ideas. Through conducting multiple interviews, I have become to form a clearer picture of the case company.

3.1.2 Gathering data

During the interviews we discussed the overall strategy that the company has from the informant's point of view. As the interview progressed, we moved onto much more specific questions about the four strategy and control variables proposed by Simons (1995). Each informant provided valuable information to this study.

Below I have provided a general overview of the structure of the interviews. Some questions changed, depending on the flow of the interviews, and follow-up questions were asked based on the answers informants provided.

1. What is your role in the company?
2. How do you see the strategy of the company?
3. What are the core values of the company?
4. How are these core values communicated or how are they present?
5. What are some risks involved in this field of business?
6. What can be done to minimize those risks?
7. What about strategic uncertainties?
8. What would be examples of data that would be relevant to monitor regarding the strategic uncertainties?
9. What key targets could be tracked within the company?

Previous to the strategy and control interviews, I sat down with the CEO and founder to discuss the company and its origins. This provided me with a better understanding of the case company and the field in which it does business.

Finally, to assure that the data I have gathered can be used factually throughout the research process and writing of this thesis, I have recorded the interviews and stored them in the cloud.

3.2 Strategy of the case company

As discussed before, the case company's goal is, in about a decade's time, to merge or sell their company to a bigger healthcare manufacturing company, that is operating in various markets around the world. To achieve this, they must consider the different strategy components and control systems.

Before taking a closer look at the control systems supporting the strategic variables, I have concluded the strategy of the company into a diagram. This will help in the process of going through the framework, since the strategy and control systems are heavily intertwined.

Strategy of the Case Company	
Core values	Risks to be avoided
Creating life changing technology for people in need. Maintaining a pleasant place to work in. Focus on people and doing the right thing. *Keeping the business on track, finding the motivation to do the work.*	Business includes many risks, such as running out of funding, competitors, and key people leaving the company. *Realizing the risks involved and acting to prevent and prepare, rather than only reacting to the shocks.*
Strategic uncertainties	Critical performance variables
Uncertainty around the field includes regulation changes, new technology, and economic environment concerning funding. *Monitoring the business environment in which the company operates in.*	Budgeting and funding. Social media presence. *Guiding the company towards meaningful paths. Tracking key targets for the mission of the company.*

Table 2: Strategy of the case company

The case company aims to understand strategy as more than one-dimensional idea. With the understanding of the strategy as a whole and having matching control systems, the company will be better prepared for the uncertainties and risks of doing business. But now we will continue to understand what matching control systems the case company is planning to adopt as a part of their strategy implementation.

3.3 Diagnostic control systems

We will begin with diagnostic control systems and critical performance variables. These are often thought of as the most common and fundamental part of monitoring business strategy. As Simons (1995) said in his article: “Diagnostic control systems allow managers to ensure that important goals are being achieved efficiently and effectively.”

Simons proposes that diagnostic control systems can be thought of as “the dials on the control panel of an airplane cockpit”, managers can scan the diagnostic control systems for signs of abnormal functions and easily making sure critical performance variables are within pre-set limits.

These diagnostic control systems have become tools for monitoring the progress of individuals, departments, and facilities towards strategically significant goals. Common targets include revenue growth and market share. What management often forget to account for is the pressure employees are under to achieve the goals set for them. This can produce unwanted behaviour and control failures. (Simons, 1995)

Building and supporting clear targets is a key action management can take to better enable employees to achieve targets crucial to the company’s strategy and goals (Simons, 1995).

3.3.1 Diagnostic control systems in the case company

In the interviews I conducted, I purposefully left this topic for last. I wanted to evoke conversation and ideas about the other levers, before talking about the most commonly associated aspect of strategy and control. This part of the framework proved even more interesting by the fact that the case company does not yet have the most commonly used financial targets of revenue or market growth.

How I approached this was through the idea of what they as a company could be tracking periodically. This should also be something that would guide the employees towards meaningful strategic targets. It is easier to choose more correct diagnostic control systems and strategic targets when we are first reminded with long-term goal of the company, core values, risks, and strategic uncertainties. By doing this, we can minimize the threat of putting too much pressure on achieving the set of targets by unwanted means or choosing wrong targets concerning the strategic goals of the company.

One of the first ideas that was brought forward was the different ways of tracking budgets. In the research and development phase of business, funding is gathered from various sources to finance the years of research. It is crucial for the longevity and effectiveness of the business to be aware of the amount of funding, how long it is going to last, and where the money is used. Often this is something that the funders want to know themselves.

On the topic of funding, another numeric target that often came up was the number of funding applied for and the number of funding managed to secure. This is of course another vital part of the longevity for the company's business. This can also be tracked periodically and compared against previous time periods. Because funding can be difficult to come by during economic distress and external factors can heavily influence the target, it was seen important that not only the secured funding is tracked, but also the amount of funding applied for. By doing so, the pressure of achieving set targets under unideal circumstances can be alleviated.

As the most commonly used targets, such as market share and revenue, are currently unavailable, the interviewees had to get creative. One of the actions management team has thought of as meaningful has been social media and more specifically, LinkedIn posts. Through the LinkedIn posts, they hope to invoke interest in their mission and attract new talent to their ranks. This has been mainly forgotten however, and the activity on the social media platform hasn't been as high as they would have hoped. The interview provoked new interest on the subject and the idea of tracking the number of posts made, came to be.

Once revenue and markets open up for the case company, it will be possible and natural to track other more common financial targets. Nevertheless, during the interviews many creative ways of tracking targets and performance came up. It was a powerful realization that targets can be quite anything, and they can change over time. It was also noted that we have to be careful with what we are tracking and measuring, because what we are tracking, we often get. Tracking and targets can be a powerful tool in guiding employee behaviour and that must be kept in mind.

3.4 Beliefs systems

Beliefs systems have been used for a long time by senior management to articulate both the values and direction they wish their employees to embrace. Most commonly these beliefs systems are inspirational and quite short. They have been purposefully left broad enough to be relevant to many groups of employees within the company.

For these beliefs systems are short, inspirational, and broad, they have often received criticism for being shallow and lack substance. This criticism, however, overlooks the very purpose of the beliefs systems – to inspire. Employees won't be inspired or committed to the company's core values if they suspect managers to follow trends, rather than leading through example the company's deeply rooted core values. (Simons, 1995)

The focus on beliefs systems is increasingly important as companies and traditional fields become more complex, and the business management style has become more laden with trends and quick fixes. Employees no longer have the same level of trust for their senior management. This can be made worse by adhering to beliefs systems that change according to the latest trends, or better by maintaining deep rooted, quality beliefs systems. (Simons, 1995)

Uncertainty about the company's purpose can harm people's motivation to contribute their time and talent to the company. Management team can hope to prevent this from happening by communicating core values and mission to their employees. By doing so, management team can unleash the potential of the employees to seek new areas of business and ways of creating value to the company. By generating new ideas, employees can create competitive advantage for the company. (Simons, 1995)

3.4.1 Beliefs systems in the case company

After talking about the general strategy of the case company, we moved onto the core values, which are the reason why the company operates today. The company was founded out of the needs of the patients and the healthcare workers. Real need for a new product was spotted and acted upon.

At the very heart of the company's core values are people. Those people are the patients and healthcare workers using the end product, but also the employees and other people taking part in making the product. The company aims to better people's lives but at the same time make sure that the company is a pleasant and inspiring place to work in. This people-oriented way of thinking became very clear from all the interviews.

The company was founded because there existed a real need for improvement in the care for patients. Consequently, this reflects on the company in the thinking that doing business right and respectfully is more important than creating obscene amounts of profit by any means necessary. The company has very strong ethical values.

These values are communicated to the employees from the management team in the everyday life of the business. These values are present in the meetings and discussions with the management team.

Employees are all aware of the values and feel that they can be seen in the way that the company does business.

What also came up in the interviews was the idea of creating more visibility to the values in the company's website and LinkedIn profile. By doing this the values would be clear to anyone hoping to work for the company. The strong values can be used as a one way of attracting likeminded talent to the company.

Hence, the company is developing a new product and revolutionizing the care for ill people, they need their employees to remain creative and boldly investigate new ways of doing things, should one way of looking at things prove unproductive. Core values and deep understanding of the company's mission help employees feel more reassured in the paths they are taking.

Simons describes the relationship between beliefs systems and the next lever, boundary systems, as follows: "Beliefs systems can be thought of as the yang to the yin of boundary systems." Inspirational and motivating, warm and light, beliefs systems are opposed by the dark and cold boundaries. (Simons, 1995)

3.5 Boundary systems

The fundamental idea behind boundary systems comes from the idea that in order for employees to be creative, managers can't tell them what to do. Unlike telling what to do, telling what not to do allows employees to be creative within pre-set boundaries. Boundary systems differ from the previous levers in the sense that boundary systems are stated in negative terms.

Harsh and demanding performance targets set for employees can create pressure to bend the rules in order to achieve said targets. These boundaries are ever more important in business fields where a reputation built on trust is essential to company's competitive assets. Fields like this include large international banks or consulting firms for example. When trust is once lost, it is difficult to regain. (Simons, 1995)

Boundary systems can be thought of as the organizations brakes. These brakes are essential to every business, but even more crucial to bigger, performance-oriented companies. In the context of start-ups, especially in our case company in its early stages of development, boundary systems are often overlooked. As Samagaio, Crespo and Rodrigues (2018) discuss in their article: “centralized firms use few formal controls and rely on direct supervision of and interaction with employees”.

3.5.1 Boundary systems in the case company

The idea of trust and direct supervision was also present in the interviews, management feels they can trust their employees and employees feel they are directly supervised by the management. However, we discussed the idea of creating more freedom and alleviating the pressure of constant supervision by setting clear boundaries around what employees can’t do.

It seems rather obvious, but employees are not allowed to share confidential information regarding the development of the product. This would directly harm the company. The boundary set around this risk is a legal one. Overall, the boundary systems can be thought of as ways in how management team can minimize the realization of risks.

Also, as the development phase continues, the company will be faced with a choice of what manufacturing company they will do business with. This clear limitation will be very present in the near future. When a decision is made to develop the product with one manufacturer, employees must align their research and development accordingly.

One way of thinking about boundaries was the idea that lots of creative ideas are thrown around in the meetings, and if one person or people suggest something that could lead to risks realizing, others guide the agenda of the meeting back into alignment with the company’s mission. This overlaps with the lever of interactive control systems, which is not uncommon that in a company this small, areas of strategy and control overlap.

This previous example is an example of a manual supervision style, and it can create both wasted recourses to missions outside company’s strategic goals but also create friction between employees and management. With the manual supervision style, managers must be careful not to discourage people from being creative. This was identified as an opportunity to adopt more clear boundaries. Once boundaries are clearer and the rules of the game are set, people in sense, become freer to do meaningful work to the company.

The natural need for boundaries and clear visions will be more present as the company grows. Kaplan (2006) explains that organizations naturally tend to become disorganized. Therefore, the main challenge for top managers of start-ups in the growth phase is to motivate and align the divisions' efforts so that the overall value created is greater than the sum of individual division efforts. MCS can be used to find the balance between personal goals and the strategic goals of the organization. (Samagaio, Crespo and Rodrigues, 2018)

Start-ups, however, are not the only companies that are late to understand the potential of boundary systems. Too often, senior management imposes codes of conduct and boundaries after the fact. Once something catastrophic has happened, managers often tighten internal regulations as a response rather than pre-emptive method to avoid risks from realization. (Simons, 1995)

By specifying and enforcing rules of the game management can alleviate the pressures and temptations employees have for not doing the right thing. (Simons, 1995)

3.6 Interactive control systems

Lastly, we are going to look at interactive control systems and strategic uncertainties. Simons (1995) described the interactive control systems as follows: “Interactive control systems track the uncertainties that keep senior managers awake at night.” Simons (1995) proposes the idea of thinking about interactive control systems as temperature and wind monitors that weather services use to monitor the weather. Unlike diagnostic control systems, that monitors short fallings from key targets, interactive control systems strive to identify patterns of change.

Simons identified four key elements of interactive control systems that set them apart from diagnostic control systems. These elements are: 1) Focus on constantly changing information that top-level management team has identified as potentially strategic, 2) Information is significant enough to demand frequent and regular attention, 3) The data generated by the interactive systems are best interpreted and discussed in face-to-face meetings, and 4) The interactive control system is a catalyst for an ongoing debate about underlying data, assumptions, and action plans. (Simons, 1995)

This way of thinking about uncertainties keeps them relevant and in the minds of the employees, while at the same time encouraging open dialogue about the challenges and uncertainties. When employees have opportunities to bring forward relevant findings about the challenges, action to combat possible challenges can be taken earlier on. Interactive control systems help managers to open organizational dialogue and encourage learning, enabling employees to create without the fear of risk or lack of opportunities. (Simons, 1995)

3.6.1 Interactive control systems in the case company

Once again, we are faced with the fact that big international companies differ from small start-ups. As Simons writes in his article, within small companies, employees and managers can sit around a table to discuss potential strategic uncertainties threatening the company. (Simons, 1995) This is very true in the case company; people share their ideas and information freely. Everyone can fit around the same table. Therefore, the need for formal interactive control systems hasn't risen, much like the previous control systems discussed, growth and lack of personal connections with the employees, invoke the need for more formal control systems. (Simons, 1995)

In the context of the case company, in our interviews we focused on the idea of what is the kind of information employees and managers should monitor. Simons (1995) uses the example of publication of market-share numbers as information that employees should monitor and analyse the meaning of.

Uncertainties identified in the interviews with the case company included many relating to the markets and regulation of health technology. New start-ups can emerge any minute, and what's to stop bigger healthcare technology companies from coming up with a similar solution. The jump from technology treating one illness to one treating another is easier with an existing company and manufacturing lines, compared to building a company from the ground up.

Regulation and laws guide heavily on what is demanded from the research and development phase as well as what is demanded from the finished product. These are some of the key elements that impact the business of the company. These uncertainties must be monitored and considered when thinking about the mission and strategy of the company. Unlike many other fields, in the healthcare industry, number of customers and their needs are relatively easy to predict. The company can at this moment in time know with relative certainty the number of patients in need of their product.

These examples fulfil the requirements set by Simons (1995) in his framework. The information concerning markets and competitors is constantly changing and relevant to the case company's business. Regulation impacts the research and development phase greatly. This information is significant enough to demand constant monitoring. Findings of the monitoring are best discussed face-to-face, since the findings can be complex, and the meaning of possible findings demands attention to the business action plan to see if it needs to be adjusted.

3.7 Case study visual framework

The table below demonstrates and concludes the key elements of the framework's control systems for the case company:

Key elements of the control systems	
Beliefs systems	Boundary systems
People and doing the right thing. *Reasons for why they as a company do what they do. In the future they could be communicated to future employees.*	Confidentiality, choosing a manufacturer *Setting clear boundaries minimizes the need for manual supervision.*
Interactive control systems	Diagnostic control systems
Competitors, markets, regulation *New companies and products emerge all the time. Regulation guides the research and development phase as well as the quality of the finished product.*	Budget, funding, and social media posts. *Key targets need to be flexible and valuate over time. Key targets must support the strategy of the company.*

Table 4: Key elements of the control systems for the case company

4. Conclusions

This study has highlighted the relationship between strategy and management control systems. Strategy formulation and implementation are both crucial, but often implementation is forgotten due to the complexity of it and the start-up management teams' pressure of reaching the markets swiftly.

In summary, management control systems can be defined as any means by which management tries to maintain or alter the behaviour of the employees. Different formal and informal management control systems form a broader control systems within a company. Previous studies have identified numerous possibilities for management teams to implement management control systems within start-up companies. In conclusion, they are positively correlated with the growth, valuation, and risk management of the companies.

Furthermore, strategy and control systems must align within the company to achieve best possibilities for creating competitive advantage. Simons (1995) has successfully combined strategy and control in his framework "Levers of Control". Although, the framework has been mainly used for large international companies with an easily recognisable need for formal control systems, the application of the framework for an early-stage start-up went surprisingly smoothly.

However, it is important to recognise what the framework was designed for, and that this is an application for a start-up company. This demands a new way of thinking about conventional financial key targets and the creativity to understand what the meaning behind the control systems is. Once the aim of the framework, to balance control and creativity, is better understood, control systems can begin to develop inside a small start-up company where everyone knows everyone personally. Rather than following strict examples, opportunities can be seen among the start-up companies who don't initially find the need for control systems.

The framework has created value for the case company, even the opportunity to sit down and think about the strategy and the mission of the company was said to have been useful. Nevertheless, this study is only a small part of the possibilities concerning management control systems and strategy in start-ups. This study has illuminated the idea about the value of control systems and strategy, but it is not a finished product as the strategic goals and conditions inside the company change over time.

Finally, the limitations of this study include the small set of data from one company. The limitations regarding the scope of the bachelor's thesis prevent the possibility for a more thorough study into the four levers of control as well as the possibility to follow up after time to see how they have been used and implemented in the company. Future research could combine data from several companies or compare the results between fields. This could be a possible opportunity to study in my master's thesis.

5. Appendix

Interview data collected for the case study:

People interviewed	Subject of the interview	Place of the interview	Duration of the interview	Date
Founder, CEO	History and origins of the company	Helsinki, Finland	1 hour	14.4.2023
Founder, CEO	Strategy and control	Remotely over Microsoft Teams	50 minutes	19.4.2023
Business Development Director	Strategy and control	Remotely over Microsoft Teams	50 minutes	20.4.2023
Founder, CEO Founder, CTO Business Development Director R&D Specialist R&D Specialist	Strategy and control	Remotely over Microsoft Teams	1 hour	21.4.2023

Table 5: Interview data collected

The interview questions asked:

1. What is your role in the company?
2. How do you see the strategy of the company?
3. What are the core values of the company?
4. How are these core values communicated or how are they present?
5. What are some risks involved in this field of business?
6. What can be done to minimize those risks?
7. What about strategic uncertainties?
8. What would be examples of data that would be relevant to monitor regarding the strategic uncertainties?
9. What key targets could be tracked within the company?

6. References

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