School of Science

Master's Programme in International Design Business Management

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Product development in a consulting firm: scaling potential inspired by the best practices for startups

Thesis submitted in partial fulfillment of the requirements for the degree of Master of Science (Technology)

Espoo, October 19, 2017

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AALTO UNIVERSITY
School of Science
Master's Programme in International Design Business Management

ABSTRACT OF THE
MASTER´S THESIS

Author:
Fabiano Paiva Brito

Title of the thesis:
Product development in a consulting firm: scaling potential inspired by the best practices for startups

Number of pages:	Date:
72	19.10.2017

Major:
International Design Business Management

Supervisor:
Matti Vartiainen, Professor - TU53

Thesis advisors:
Tatu Hautala, M.Sc.

Successfully developing a software product from the scratch until launching to the market is not simple. This is the day-by-day of many startups, whose existence is based on building and selling scalable products. But what if a company built on a business model that is, by its nature, very different from startups, decided to venture into product development? This study analyzes a consulting firm that decided to develop and commercialize a Software as a Service (SaaS). Results show that, although the business drive is clear, several challenges must to be overcome for a consulting firm to operate closer to how a startup would.

According to theory, consulting firms have high variable costs bound to consultants' wages, causing the operating expenses to increase at the same rate as the revenue. In comparison, technology startups have higher fixed costs typically linked to licenses and developers' salaries, operating with low variable costs, what creates potential to scale revenue faster than the operating expenses. By analyzing the financial figures of a real consulting firm, this theory was proven to be valid, and therefore, despite of achieving outstanding growth, scaling in the consultancy model is limited.

Thus, this work explores well-consolidated theoretical frameworks for startups to successfully develop and launch products to the market, and in parallel, it dives deep into a real consulting firm's processes, practices, and challenges for developing a SaaS. The analysis within this firm is done by first looking into project documents for elements that communicate the steps for developing the case product. To complement the analysis and discover the underlying practices and challenges in this process, members of the development team were surveyed and observed during a workshop to co-create the value proposition of the case product.

Findings show that, even though the process is found to be closer to the traditional product development, an iterative approach with continuous learning was in use. Also, the team pointed out a lack of understanding on the potential customers, and the feeling that an internal competition for resources was compromising the workforce of the development team. Finally, discussions about the value proposition revealed difficulties for the company to detach itself from a consulting mindset towards a startup-oriented thinking. Although there are challenges, there are also ways to systematically overcome them, uncovering a better track to successfully accomplish such endeavor.

Keywords:	Publishing language:
Consulting firm, startup, product development	English

Preface and acknowledgements

It's not just about writing an extensive piece of work, but it's about doing that far from my home country, in a different language, subjected to all kind of pressures. When I started the first discussions in Finland, with several different people, about the topic of this thesis, I couldn't imagine that, about nine to ten months later, I would be finalizing this work here in Spain.

The year of 2017 brought me some amazing opportunities that took me to a hackathon in Japan, to a short visit to my family in Brazil, and to live during two months in Spain due to my job. I thank God for the wisdom and courage provided for me to embrace those opportunities, and the strength and resilience to face the innumerable setbacks that crossed my way during this journey.

I'm immensely grateful to my wife Adriana, who accompanied me in all moments, either in presence or from distance. For the patience of dozens of sleepless nights, for supporting me in countless moments of frustration, and for letting me know at all times that everything would be ok at the end. Thank you for your unconditional love.

To my mother, sister, parents-in-law, and all the family and friends, thank you all for understanding my absent moments, when I was isolated, quiet, and focused writing this thesis. To my father, thank you for making me strong. I know that, from where you are, you are proud and happy for me.

Matti Vartiainen, thank you for guiding me in such a complex and big work. A big thanks to all IDBM (and former IDBM) crew who, one way or the other, took part in this journey since my arrival in Finland more than three years ago.

Thank you Tatu Hautala for clearing all the paths at Leadin to make this possible. And my sincere thanks to all the Leadiners that were part of this process, hearing my crazy ideas, complaints, and nonsense for months, it's great to be part of this team.

“Life is like riding a bicycle. To keep your balance, you must keep moving.”

– Albert Einstein

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1 INTRODUCTION

1.1 Background

Traditional consulting businesses rely on the model of hiring top-notch talents and charging their clients on an hour-based fee for them to gain access to that knowledge and solve their challenges (Sniukas, 2015).

A fundamental challenge of this type of business model is scaling. Consulting firms tend to have high variable costs, which are directly related to personnel's salaries, and low fixed costs, which are those costs that do not vary strictly along with the sales volume.

Having high variable costs and low fixed costs incurs in low operating leverage, and the lower the operating leverage of a business, the harder is to increase the gross margin at a faster rate than the operating expenses. In other words, at the limit, a company with low operating leverage can grow, but cannot scale.

All these and other definitions necessary to understand this challenge will be explored in detail in Chapter 2, along with other challenges that consulting firms can face.

1.2 Research objectives

This research focus on studying a real consulting firm that, in parallel to its core business, has decided to put effort to develop a new Software as a Service for its existing and potential new clients.

Developing a new product is a tough road to follow, but that can increase the possibilities to scale the company's gross margin. This can happen in a similar way as in a technology business, in which the operating leverage is more likely to be high due to higher fixed costs and lower variable costs.

To orient companies venturing into the world of product development, authors as Blank (2013) and Ries (2011), who are also serial entrepreneurs, have shared what they have learned empirically, from their own trials, showing what it takes to build and launch a successful product.

Blank, who has been a technology serial entrepreneur for 25 years, and has learned from influential marketing practitioners and strategists in Silicon Valley, developed the Customer Development Methodology. He has also taught in renowned schools as Haas Business School at Berkley, Graduate School of Engineering at Stanford, and the MBA program at Columbia School of Business (Blank, 2013, p. 367).

Blank has been Ries's mentor and advisor, and invested in one of his startups (Ries, 2011, p. 304). Ries has graduated in Computer Science at Yale University, and over the course of six years he co-founded three startups. Serving later on the advisory board of several other technology startups and venture capital firms, he developed the Lean Startup approach (Ries, 2011, p. [About the Author]).

Thus, the objective of this work is to understand how a consulting firm deals with the development of a proprietary digital product as a way to differentiate itself, and diversify its business model to be more likely to scale. By contrasting the approach of the case company with the theory, potential answers to support consulting firms facing or willing to face a similar challenge should emerge, helping them to scale more sustainably.

The answers are pursued through a set of research questions that focus on first validating the scalability challenges of consulting firms, for then understanding the process, as well as the underlying practices and challenges of a real consulting firm developing its own digital product. Finally, by supporting the team to co-create a business vision for this new product, the thinking orientation should be clearer, supporting a more holistic understanding towards reaching the objective of this work.

1.3 Structure of the thesis

In Chapter 2, the frameworks developed by Blank (2013) and Ries (2011) are studied in depth and contrasted with other definitions and approaches from other authors, as well as with the proprietary approach from the case company, developed by Lehikoinen, et al., (2016) .

Chapter 3 poses the research questions and presents the case company in more detail, as well as the methodology and methods to answer those questions through data collection and analysis.

In Chapter 4, findings of the research are presented based on the proposed methods of data collection, with detailed argumentation to support the evidence based on the theoretical framework.

Finally, Chapter 5 reaches back to a more general level conclusion based on the findings from the previous chapter, proposing recommendations for companies facing similar challenges, and serving as a starting point for future research on the topic.

2 THEORETICAL BACKGROUND

This chapter presents the theoretical background of this work, starting in section 2.1 with an analysis on why consulting firms have challenges for scaling despite of their potential to grow. Next, it explores in sections 2.2 and 2.3, two different models for developing successful products through a lean customer-centered fast-paced startup-oriented approach. Lastly, in section 2.4, the case company's proprietary framework for approaching their own customer challenges is presented, which is then compared with the two previous models, wrapping up the framework of this study in section 2.5.

2.1 Growth is not scaling

As briefly introduced in Chapter 1, consulting firms face challenges for scaling even though they can grow fast. But before understanding the reasons, one must first understand the definitions of *gross margin* and *operating leverage*.

A company's *gross margin* is the percentage of its revenue after subtracting its cost of goods sold - COGS (Investopedia, [no date]-b). In its turn, COGS are the direct costs for a company to produce its goods, excluding indirect expenses as marketing, sales force, and distribution (Investopedia, [no date]-a).

Still according to Investopedia ([no date]-c), *operating leverage* measures the degree to which a company incurs a combination of fixed costs and variable costs. *Fixed costs* are those that do not change along with an increase or decrease on the products and services sold, as rents or insurances; and *variable costs* are those that depend on the production volume of the company such as direct materials or labor costs.

High fixed costs and low variable costs is what creates a high operating leverage, meaning, on the one hand, that a better gross margin can be achieved, but on the other hand, that the company can be more affected by other factors that result in revenue decreases, becoming also riskier (Investopedia, [no date]-c).

Taussig (2011) affirms that a business can scale only if it has operating leverage, which means that a potential increase in the gross margin can happen at a higher rate than an increase in the operating expenses.

According to Taussig (2011), consulting firms tend to have low operating leverage, which happens because they should hire consultants almost on a one-to-one basis if they want to grow their revenue.

An example found in Investopedia ([no date]-c) also reiterates this point of view as it shows that consulting firms, that usually charge their clients hourly, have high variable costs due to its consultants' wages who are outsourced, having therefore lower operating leverage. In contrast, software businesses, as startups often are, have higher fixed costs on licenses and developers' salaries who work solely on the company's product, having therefore higher operating leverage.

Taussig (2011) illustrates this perspective by showing the gross margin and operating expenses (OpEx) of a typical consulting firm (Figure 2.1), and a technology business with a scalable product (Figure 2.2).

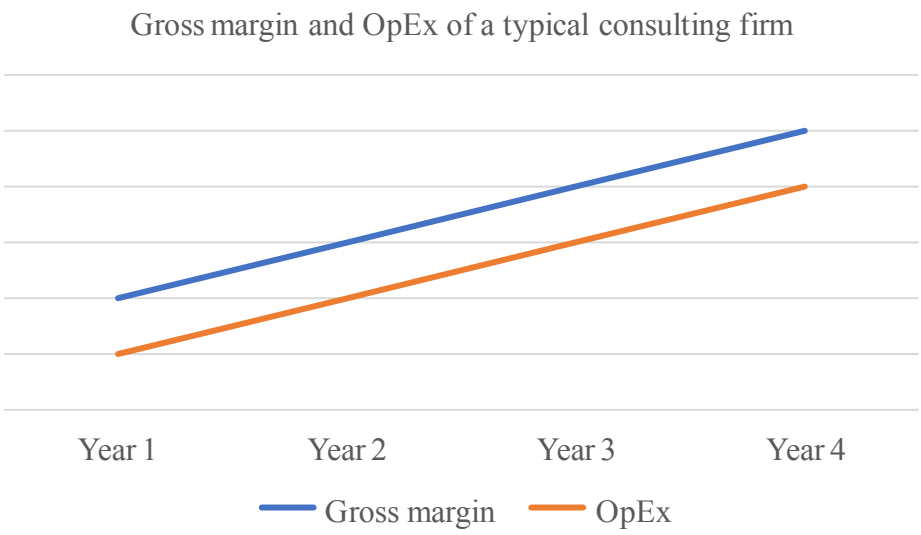

Figure 2.1 – Gross margin and operating costs of a typical consulting firm (Taussig, 2011)

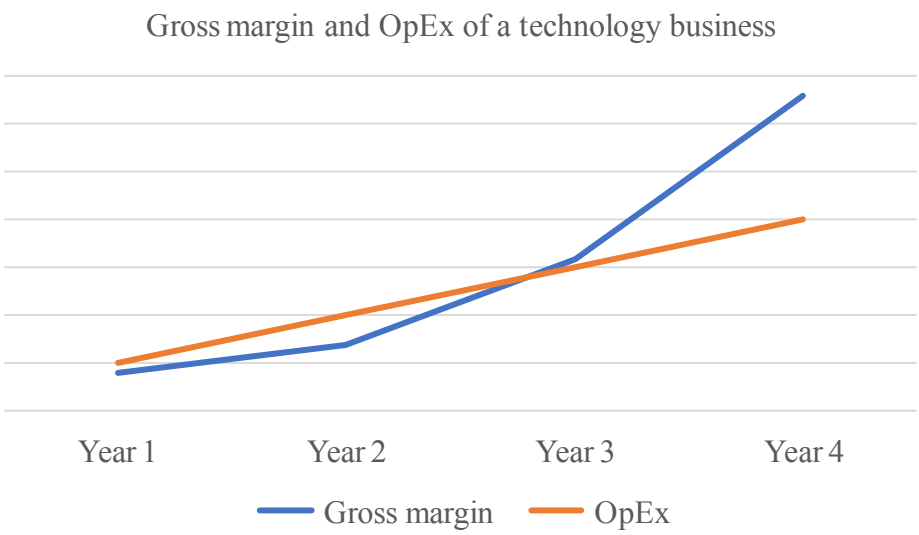

Figure 2.2 – Gross margin and operating costs of a technology business with a scalable product (Taussig, 2011)

Frederiksen (2016) points out other challenges that consulting firms can face in the long run as: attracting and developing new clients; dealing with a difficult economy and competitive marketplace; finding and retaining good talents; innovating and developing new ideas; and planning and developing strategies to use time and resource more efficiently.

Further in this work, the financial figures of a real consulting firm are analyzed and compared against the theory, validate whether the gross margin and operating expenses really tend to behave as shown in here. Moreover, this case company was chosen for this study due to the fact that it is giving its first steps on the road to develop and commercialize its own technology product in the format of a Software as a Service (SaaS).

Many technology businesses adopt the model of developing a SaaS. In this model, the software is hosted over the internet and accessed remotely using any device that possesses a web browser. In this model, the software is owned by the service provider rather than by the user, and the latter can pay, for example, a monthly or annual fee for using the service. Moreover, the provider is responsible for maintaining and updating the software (Sommerville, 2016, p. 513).

The concept of SaaS is not new, and it was stablished in the 1960s by IBM, but it took off in the last decade since the mobile web has gone mainstream (Technavio, 2016).

Moreover, SaaS delivery is currently growing five times faster than traditional software product delivery, and by 2019, cloud applications are expected to account for 90% of the mobile traffic, and the market is expected to reach 112 billion dollars (Zenoss, 2017), at a CAGR[1] of 8% until 2021 (Technavio, 2016).

Developing a product requires a very different mindset than that of a consulting business, and for that reason, the following sections 2.2 and 2.3 present models based on the best practices for startups to develop products.

2.2 Product Development and Customer Development

The Customer Development model was developed by Blank (2013) as a result of an empirical analysis throughout years observing and running new business ventures, and is focused on customer learning and discovery in comparison to the sibling model of Product Development.

The Customer Development model introduces startups a way to learn and discover who their initial customers are and what markets they are in, and the Product Development model, a traditional model for developing products, focus on the first customer ship (Blank, 2013, p. 21).

This section starts by exploring the Product Development model, followed by presenting the Customer Development model, and finally it reflects on how both models can be strong if they work together.

2.2.1 Traditional Product Development Model

To start exploring the Customer Development model, one needs to first understand the Product Development model. Blank (2013, p. 2) suggests that the Product Development model works well for companies launching a product in a market that is established and well defined, where competitors and customers are known.

[1] Compount Annual Growth Rate, which is a hypothetical number representing a steady rate at which an investment can grow (Investopedia, [no-date]d).

Ulrich & Steven (2012, p. 12) describe the product development process as a "sequence of steps or activities that an enterprise employs to conceive, design and commercialize a product". The authors state that a well-defined process is important for assuring quality, coordinating activities within the development team, planning milestones, detecting possible problem areas against the established process, and identifying opportunities for improvement.

This traditional approach, as described by Ulrich & Steven (2012, p. 13) comprises six phases, as shown in Figure 2.3.

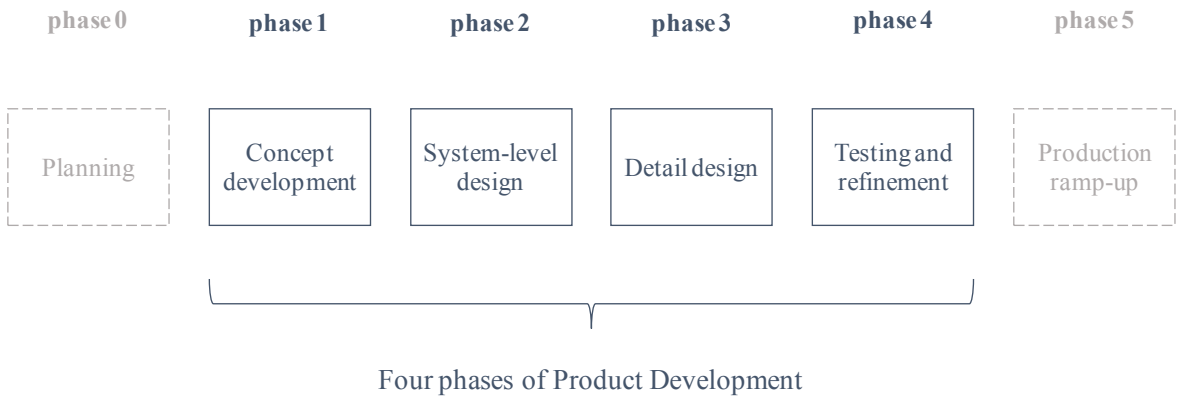

Figure 2.3 – Product Development Process (Ulrich & Steven, 2012, p. 14).

According to Ulrich & Steven (2012, p. 13), the process begins with a planning phase that is closely related to research and technology development. This first phase results in a mission statement to begin the development process *per se*, which will lead, at the end, to the product launch.

Exploring in more detail the vision of Ulrich & Steven (2012, pp. 13-16), the *Planning Phase*, as known as *phase zero*, is carried out by identifying opportunities based on the corporate strategy, including technology assessment and market objectives, and having as result the specification of the target market, business goals, assumptions and constraints. The next phase, *Concept Development*, identifies the customer needs, the competitors, studies the feasibility and builds experimental prototypes, as well as assesses costs and legal issues. Subsequently, it comes the *System-Level Design* phase, which defines the product architecture, decomposition of the product concept into key components, identifying suppliers, and defining the assembly scheme. The next phase is the *Detail*

Design, in which the complete specification of the product is done, materials and process plan for fabrication are defined, and the marketing plan is created. The second last phase, *Testing and Refinement*, is when alpha prototypes are tested to check if the product will work as designed, and beta prototypes are tested by customers to assess performance, reliability and durability, while the marketing team develops promotional materials, and the sales team, a sales plan. Finally, it comes the *Product Ramp-Up*, where the workforce is trained, customers perform final tests to identify possible remaining flaws, the company establishes a fully operating production system and the product becomes available for large distribution.

This very linear waterfall model is very different from the vision that Blank (2013) proposes for the Customer Development model, which will be discussed in detail in section 2.2.2. Notice that the whole process described by Ulrich & Steven (2012) has only few mentions about involving customers and is very much process and technology driven, which as mentioned before, works well for a scenario where market, competitors and customers are well known (Blank, 2013, p. 2).

The Product Development model on which Blank (2013) bases his comparisons, in relation to the Customer Development model, is a very broad one, starting with a concept, and going through development and testing until launch (Figure 2.4), a model that evolved in the early 20th century with the manufacturing industries.

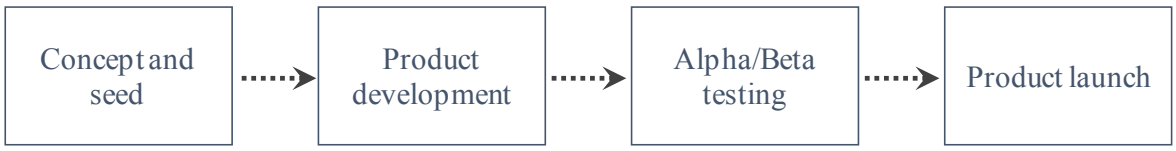

Figure 2.4 - Product Development Model (Blank, 2013, p. 2)

Concept and Seed

The first stage of the Product Development model is the Concept and Seed. Blank (2013, p. 3) describes this stage as four steps that start in the first place with the formalization of the founders' visions and ideas. Second, the concept should be shaped with a more detailed definition of the product or service, and the technical constraints, features and benefits. In the third place, it is time to identify and survey potential customers and to do a market research. The fourth and final step of the Concept and Seed stage is to define the potential

distribution, marketing channels, competitors, and positioning. At this point, there should be enough information for a preliminary business plan with first assumptions about pricing, costs, and schedules, which is supposedly sufficient material to start approaching venture capitalists (Blank, 2013, p. 3).

Product Development

The second stage of the Product Development model is the Product Development *per se*. Blank (2013, p. 4) draws a picture of a company that starts to form an Engineering team that will be responsible for estimating delivery dates and development costs using a traditional waterfall planning process. On the other side of the company, a Marketing team refines the market, runs one or two focus groups, builds a sales demo and starts to target the first customers.

Alpha/Beta Testing

The third stage of the Product Development model is the Alpha/Beta Testing. Blank (2013, p. 5) suggests that at this point the Engineering team starts to test the product with real users to find usability bugs and to make sure that the product works as required. Subsequently, the Marketing team creates a comprehensive marketing plan and starts the roadshow, and the Sales team starts acquiring the first paying customers, or so-called early adopters, for beta testing. Blank (2013, p. 5) concludes this picture with founders refining the fund-raising pitch and looking for another round of investment, and investors measuring the efficiency at this point by the number of orders in place and current sales.

Product Launch

The fourth and final stage of the Product Development model is the Product Launch. Here, Blank (2013, p. 5) describes a scenario in which the company is under high pressure and burning cash to build a sales structure with quotas and goals based on the initial business plan, and also launching heavy marketing campaigns to create demand. Yet, often with no sign of early liquidity, the founders go out seeking for another round of investment (Blank, 2013, pp. 5-6).

* * * * *

It is important to make clear that Blank (2013, p. 6) considers a flaw to trust exclusively on this process that was just described when it comes to startups, which are companies that

develop new products in new markets under high uncertainty. For solving the problems that arise from that, which are better explored in section 2.2.3, the author proposes the Customer Development model, presented in the following section.

2.2.2 Customer Development Model

Blank (2013, pp. 25-26) presents the Customer Development Model, through which new ventures can discover markets, locate and validate customers very early in the process. In his point of view, this model is complementary to the Product Development Model, and focus on testing whether a company's business model solves its customer needs. The steps present in this model are show in Figure 2.5, and is discussed next.

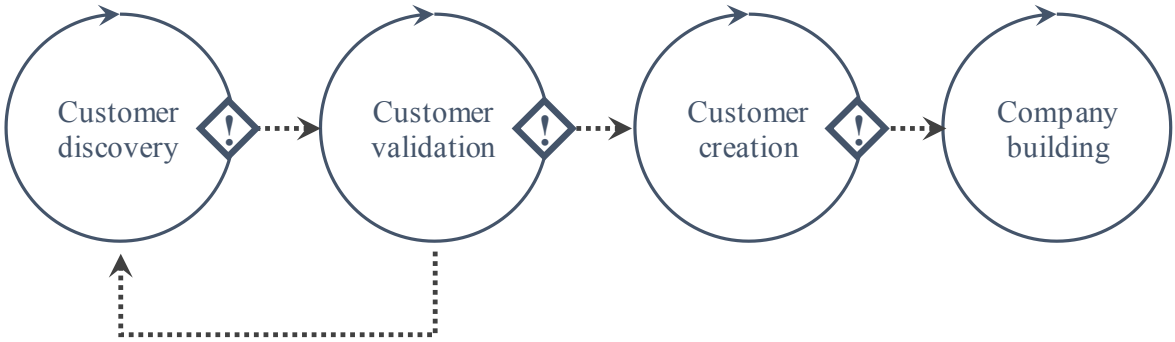

Figure 2.5 - Customer Development Model (Blank, 2013, p. 25)

Customer Discovery

The first stage of the Customer Development Model is the Customer Discovery. Blank (2013, pp. 27-28) suggests that the very first element to analyze in a new venture is whether the problem the company is trying to solve is important to the potential customers. Therefore, the role of the Customer Development team is to learn what are the customer needs, who exactly the customers are, and evaluate whether there are valid customers and a valid market for the founders' vision.

Customer Validation

The second stage of the Customer Development Model is the Customer Validation, which according to Blank (2013, p. 29), is used to prove that the set of customers and market will have a positive reaction to the product. The goal of this stage is to find a replicable group of customers with a replicable sales roadmap by: locating customers; testing the perceived value of the product; defining pricing and channels to reach the customers; and by defining

the sales process. Blank (2013, p. 29) also points out that only if those replicable group of customers and sales roadmap are proven profitable, one should move to the next step, otherwise the initial steps should be iterated.

Customer Creation

The third stage of the Customer Development Model is the Customer Creation. Blank (2013, p. 29) describes this step as the moment to create user demand and drive it to the sales channels, which should happen only after the company acquires its first customers (in the previous stage) so the marketing budget can be well targeted and controlled. This step is highly dependent on the market type, which can be existing, new, or a resegmentation by lowering costs or by niche targeting (Blank, 2013, pp. 30-31).

Company Building

The fourth and final stage in the Customer Development Model is the Company Building. This last step is when, according to Blank (2013, p. 30), the company starts formalizing its structure, building department with focused teams that will push the proven business model forward in the market. This happens only in the last step because, as Blank (2013, p. 30) discusses in his book, premature scaling without a validated business model is one of the main reasons why new ventures fail.

2.2.3 The Complementarity of the Models

As mentioned before, the Customer Development Model is not a substitute for the Product Development Model. Blank (2013, p. 6) indicates that the main problem with new ventures is that they tend to use the Product Development Model for managing non-engineering activities as marketing, sales, customer acquisition, and financial modelling.

Several other flaws of focusing solely on the Product Development Model are: the lack of identifying and developing customers and markets; focusing on the first customer ship date without really knowing how to market or sell the product; emphasizing on executing the product rather than learning if the product really addresses customers' needs; lacking milestones for sales, marketing and business development; building a sales strategy too late in the development process; starting marketing activities even before testing positioning and demand; and scaling based only on assumptions (Blank, 2013, pp. 6-14).

Complementing that point of view, Blank (2013, p. 18) refers to a model that was adopted by many startups in the early 1990s as the Holy Grail for sales and marketing. That is Moore's (1991, p. 10) model of technology adoption life cycle, which "describes the market penetration of any new technology product in terms of progression in the types of consumer it attracts throughout its useful life". The bell curve introduced by Moore (1991, p. 16) is shown in Figure 2.6.

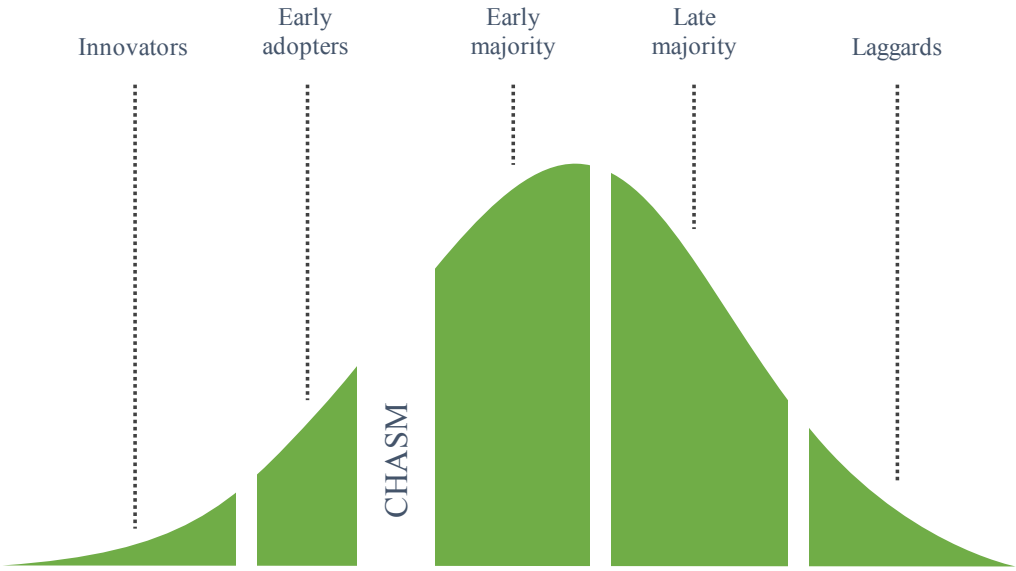

Figure 2.6 - Technology Adoption Life Cycle (Moore, 1991, p. 16)

According to Moore (1991, p. 10), each group in the model represents a unique combination of psychological and demographic profiles, distinguished by their response to discontinuous innovation and marketing. These five groups are, in more detail: *innovators*, who seek new technology products even before a formal launch, being the technology one of the central interests in their lives; *early adopters*, who can quickly understand and appreciate the benefits of a new technology in their lives, even though they are not technologists as innovators are; *early majority*, driven by a strong sense of practicality, they appreciate the benefits of new technologies, but prefer to wait and observe how other people are doing with the new product to avoid possible pitfalls; *late majority*, who does not feel comfortable in adopting and learning how to use a new technology, and even though the initial hype could have already passed, they prefer to wait until the novelty becomes a standard; and finally the *laggards*, who for personal or economic reasons do not want to deal with any new technology, ending up with a new technology in hands only if it

is naturally embedded in any other product they already use, being therefore a market that is usually not worth pursuing (Moore, 1991, pp. 11-12).

Moore's (1991, p. 15) model has gaps in between the groups to represent potential stages in which the marketing might lose momentum, in other words, any group will have difficulties to accept the new technology if it is marketed in the same way as for a previous group. The minor gap between innovators and early adopters occurs because a new exciting technology might not be well translated into concrete benefits, and the one between the early majority and the late majority occurs because the technology has become mainstream, but its adoption did not become any easier, being thus uninteresting for the late majority (Moore, 1991, pp. 16-17).

The most important gap, however, is the one referred by *chasm* (Figure 2.6), that separates the early adopters from the early majority, and that happens because the basis for selling, or what has been promised in contrast to what must be delivered, is radically different in both groups (Moore, 1991, p. 18). On the one hand, early adopters expect to be a change agent, in other words, they expect a radical discontinuity between the old and the new, being even prepared to deal with possible bugs. On the other hand, the early majority expect to buy productivity improvement, seeking evolution and enhancement rather than revolution, they want the product to work well and to integrate easily with their technology base (Moore, 1991, pp. 18-19).

Back to Blank, the author mentions that Moore's approach also lacks something. The Technology Adoption Life Cycle curve is a good model for sales and marketing once the product reaches the market, however for an entrepreneur who is just starting a new company, the curve is still far away and does not help to develop sales and marketing strategies early in the process (Blank, 2013, p. 19). Moreover, Blank (2013, p. 20) states that this curve might lead entrepreneurs to series of mistakes: to dream with the mainstream market without even having basic assumptions about the market; to assume that innovators will pay for testing the product, what they seldom do; to believe that a customer base grows in a smooth and continuous curve when in reality it is a step function; and to focus on execution, even though in the early stages the company should focus on learn and discovery instead.

Hence, Product and Customer Development Models should work in parallel and synchronized, and the Technology Adoption Life Cycle is something that should jump in very late in this model. Blank (2013, pp. 37-38) suggests that this synchronization could happen by validating product specifications rather than creating new features in the Customer Discovery stage, by having key members of the Product Development team as part of the pre-sales team in the Customer Validation stage, and by having the Product Development team giving support for the initial product and training for service staff in the Company Building stage.

* * * * *

The key takeaway of this section, for this work, lies on the fact that developing a product is a process that highly depends on customer insights in very early stages. Traditional product development processes for new products are valuable only if combined with the Customer Development model, with emphasis to discover markets and validate customers even before having a working prototype. Furthermore, when talking about technology products, the technology adoption life cycle curve (Figure 2.6) starts to make sense only in the very end of the Customer Development model, after a long phase of learning and discovering, that will allow the company to have a better knowledge on how to approach the mainstream market.

Further, this work analyzes a consulting firm that has started to develop a technology product, and its empirical process is then contrasted with the theoretical approaches studied in this section, in order to evaluate if the practices are more oriented towards the product or the customers.

The next section presents the Lean Startup method, an approach that is closely related to the Customer Development model.

2.3 Lean Startup

The Lean Startup method builds on top of theories and frameworks as Lean Manufacturing, Design Thinking, Customer Development, and Agile Development, and introduces a framework with a fast cycle to build, measure, and learn, focusing on what customers want, using a scientific approach to make decisions whether to proceed or pivot the business (Ries, 2011, pp. 4, 5).

This method was proposed by Eric Ries based on his own experiences of starting a new company and launching new products. Besides trials, the method also brings Ries's experience of working with Steve Blank (whose work is extensively explored in section 2.2), and his own studies on Lean Manufacturing, a process originated in Japan with Toyota (Ries, 2011, pp. 1-8)

The Lean Startup method has five principles, according to Ries (2011, pp. 8-9): first, a startup is "a human institution designed to create new products and services under conditions of extreme uncertainty" (Ries, 2011, p. 8), which makes it approachable for any size of company in any sector; second, it considers entrepreneurship as an activity that requires a lot of management, so the company should not be only about the product or the service; in the third place, learning is considered to be one of the main purposes why a startup exists; fourth, the fundamental activity of a startup is the feedback loop of turning ideas into products, measuring customers' response, and steering the strategy; and finally, the fifth principle says that accounting, measuring progress, setting up milestones, and prioritizing work are fundamental steps to improve the outcome.

The Lean Startup method is better detailed next, according to Ries's (2011) approach, divided into Vision, Steer, and Accelerate.

2.3.1 Vision

The first part of the Lean Startup method is the Vision. In this part Ries (2011, p. 10) explores the vision of a startup, as well as the definition of entrepreneur, startup and entrepreneurial management, and how new ventures can validate their learnings using scientific experimentation to progress towards a sustainable business.

The *startup's vision*, as defined by Ries (2011, pp. 22-23), is the basic and general form of a startup's objective, that is to create a breakthrough prosperous business. In this model, the vision supports a *strategy* that includes a business model, a product roadmap, and information about the market, including partners, competitors, and customers. In the end, the strategy is aimed to create the startup's *product*. This model is shown in Figure 2.7, in which it can also be observed that the strategy can occasionally change, process known as

pivot in the Lean Startup method. In fact, the product is expected to constantly change through the *Build-Measure-Learn* feedback cycle, discussed later in this work.

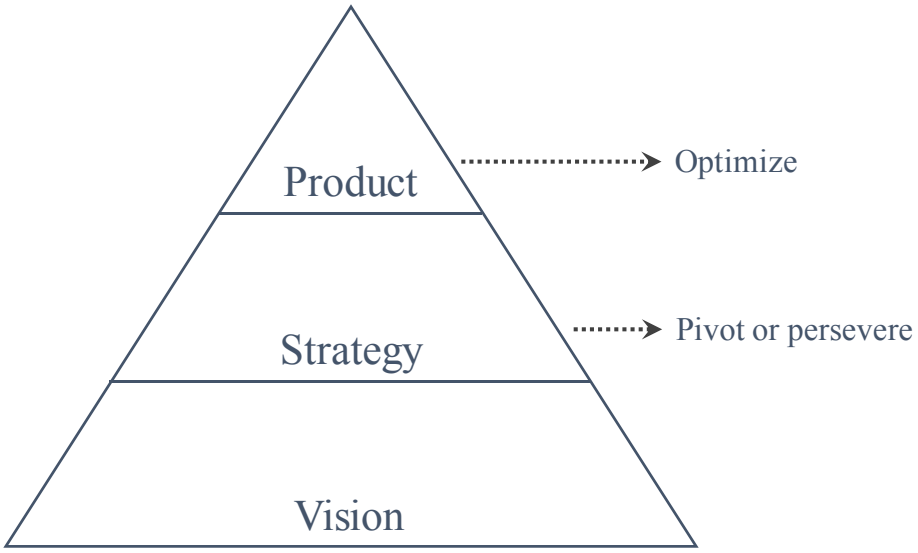

Figure 2.7 - Product-Strategy-Vision model (Ries, 2011, p. 23).

Ries (2011, p. 21) uses the analogy of driving a car versus launching a rocket ship to describe how new ventures should be run. On the one hand, driving a car requires a series of quick and orchestrated movements as turning the steering wheel, shifting gears, and pressing pedals, all of that happening as very quick feedback responses to the driving conditions. On the other hand, launching a rocket ship requires a set of in-advance thoroughly thought details and calibrations that should be perfectly tuned, as the tiniest error could lead to a catastrophic situation miles later. Obviously, in face of the high uncertainty and need for flexibility, running a startup company fits better to the analogy of driving a car.

The definition of a startup, as pointed before, is the one of "a human institution designed to create new products and services under conditions of extreme uncertainty" (Ries, 2011, p. 8). Ries (2011, pp. 28-29) breaks down this definition by exploring the concept of *human institution*, *new products and services*, and *extreme uncertainty*. A startup is a *human institution* because it is not only about the product, but most importantly, about a human enterprise that hires creative employees and needs to coordinate activities, developing a company culture. *New products and services* comprises anything that creates value to customers as well as any form of interaction customers have with the company, and they

are *new* because startups use different kinds of innovations, from scientific discovery to market resegmentation. Finally, without the context of *extreme uncertainty*, a company would not fit to the startup definition because its success would depend solely on execution of well-known business models. One should be attentive to the fact that, from the definition of startup as described above, Ries (2011, pp. 26-27) points out that both a startup venture and an entrepreneur could exist in any industry or sector, as a garage company founded by students, as a spinoff venture of a big corporation, as a government agency, as a venture-backed company, or even as a non-profit organization.

Despite the common belief that startups should take the "just do it" approach, Ries (2011, pp. 15-18) argues that the lack of managerial discipline still results in too many failures for every success. Thus, management is crucial for new ventures to succeed.

Ries (2011, p. 49) states that learning is the basic unit of progress for startups, and calls *validated learning* the approach of learning what is relevant for customers based on empirical data collected from real customers. The validated learning in the Lean Startup method is described as an experiment that follows a scientific method. It begins with a clear hypothesis about what is supposed to be built, and then, by designing and running a series of structured empirical tests to validate those assumptions (Ries, 2011, pp. 56-57).

This scientific method for turning startups into sustainable businesses starts by breaking the vision down into *value hypotheses* and *growth hypotheses*; the first tests the real value that it is being delivered to customers once they are using the product or service, and the second tests the ways new customers will find about the product or service (Ries, 2011, p. 61). The experiments in this approach are more than a theoretical inquiry, they are iterations of a minimum viable product, which will eventually be part in the construction of a final product. With this approach, at the moment that a final product reaches the market, its hypotheses are supposed to be already validated, making it natural to reach and create value to the customers (Ries, 2011, pp. 63-64).

2.3.2 Steer

The second part of the Lean Startup method is called Steer. This is where Ries (2011, pp. 10-11) presents the Build-Measure-Learn feedback loop. The cycle starts with virtually blind assumptions that should be tested against a minimum viable product. This process is

sustained by an accounting system to measure progress and support decisions to change or maintain the current direction of the business.

The process of building the startup's product or service consists of a series of experiments with the intention to learn as much as possible about the customer, and this feedback can be both qualitative and quantitative (Ries, 2011, p. 75). The feedback process, known as Build-Measure-Learn feedback loop in the Lean Startup method is presented in Figure 2.8.

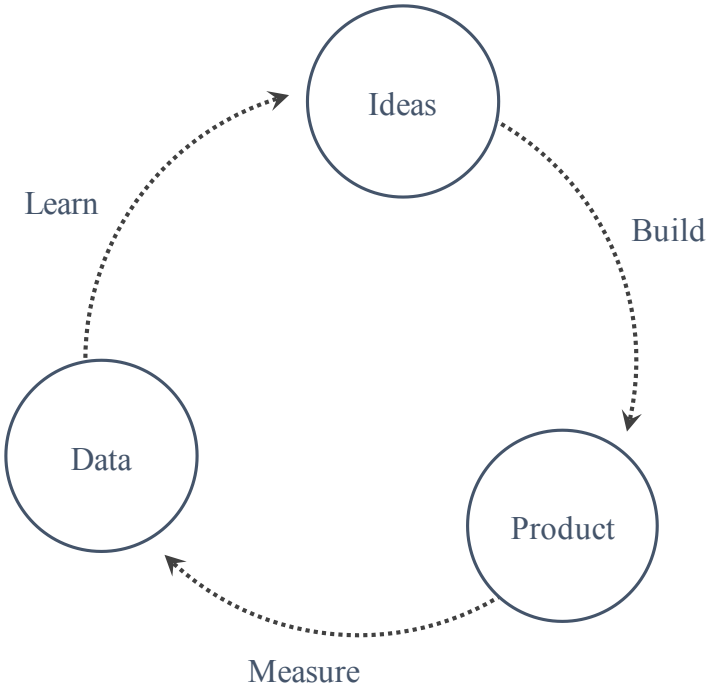

Figure 2.8 - Build-Measure-Learn feedback loop (Ries, 2011, p. 75).

Ries (2011, p. 76) points out that all activities are important in this feedback loop, nonetheless, the most important factor is to minimize the total time through each cycle. A very important argument to notice, is that even though the loop is presented in the order the activities happen, planning works in the opposite way, first outlining what to learn, for then defining which metrics are important to materialize that learning, for only then deciding what to build (Ries, 2011, p. 78).

Every cycle starts with a set of assumptions that are often wrong, and Ries (2011, pp. 81-82) states that entrepreneurs should act in the beginning as if those assumptions were true, performing a leap of faith with the goal to systematically test them as fast as possible.

Tests depend on MVPs, or minimum viable products, which in contrast to the traditional product development process, have the goal is to start the process of learning rather than ending it, and to test fundamental business hypothesis rather than answering only product design or technical questions (Ries, 2011, pp. 93-94). Ries (2011, pp. 96-97) still points out that "the lesson of the MVP is that any additional work beyond what was required to start learning is waste, no matter how important it might have seemed at the time".

From building MVPs and testing, a startup must know what and how to measure. Ries (2011, p. 114) reinforces that a startup should rigorously and realistically measure its current state, and visualize experiments that will help the company to steer towards the ideal situation reflected in the business plan. Moreover, Ries (2011, pp. 143-144) explains that metrics should be: *actionable*, clearly demonstrating cause and effect; *accessible*, in other words, as simple as possible to be easily understandable by all; and *auditable*, so the data can be tested against real customers to assure its consistency.

According to Ries (2011, p. 149), the whole discussion on creating assumptions, building MVPs, testing, measuring, and learning is a prelude for the constant challenge of the entrepreneur, which is to cyclically decide whether to persevere in the same strategy or to pivot to a different one. Ries (2011, pp. 161-162) remembers that pivoting requires courage, and from his experience, entrepreneurs who have pivoted regret not having done it earlier. In addition, entrepreneurs can be afraid of pivoting for three main reasons: first, vanity metrics might show increasing numbers and hold up the decision, masking a reality that is not reflected by numbers; second, if hypotheses are unclear, it is difficult to measure success of failure; and third, entrepreneurs can have the false sensation that they would always need more time to prove their vision, even though evidences might already show the contrary.

There are several ways to pivot, namely: *zoom-in pivot*, when a single feature becomes the whole product; *zoom-out pivot*, when the whole product becomes a feature of a larger product; *customer segment pivot*, when the company realizes that its product solves the problem of a different customer segment; *customer need pivot*, when knowing customers very well reveals that they have a different need; *platform pivot*, when the product changes from a single application to a platform or vice-versa; *business architecture pivot*, when a company switches from a model with low volume and high margin, to a model with high

volume and low margin; *value capture pivot*, when a company makes changes in its revenue model; *engine growth pivot*, when the company interchanges its model of growth between viral, sticky, and paid (defined in the section 2.3.3); *channel pivot*, when a company changes its sales or distribution channels; and *technology pivot*, when a company finds out means to reach the same goals, but using a different technology (Ries, 2011, pp. 173-176).

From the initial leap of faith, testing hypothesis with MVPs, and using metrics to evaluate whether to pivot or persevere describes the core cycle of the Lean Startup method, which is the driving force to accelerate towards the company vision (Ries, 2011, p. 178).

2.3.3 Accelerate

The third and last part of the Lean Startup method is called Accelerate. In this part Ries (2011, p. 11) proposes techniques to run the feedback loop, presented in the previous section, as fast as possible, discussing concepts of lean manufacturing, organizational design, scalability, and finally, the method's applicability in big organizations.

Ries (2011, p. 181) remarks that defining the frequency for releasing a product is a tough decision for startups because, on the one hand, releasing too often drains energy that could be used to build and improve the product, and on the other hand, releasing too late can lead to put in the market something that does not make sense to potential users anymore.

To understand how the Lean Startup's feedback loop can be run fast, one must take a closer look at batch processes in manufacturing. Ries (2011, pp. 184-185) argues that a large-batch approach in a production process is wrongly intuitively more efficient. The author illustrates that affirmation with a process of folding letters, stuffing them into envelopes, and sealing the envelopes. If one would have one hundred letters to send, it would be apparently more efficient to first fold all of them, then stuff all of them into one hundred envelopes, and finally seal all to finish the job. However, by doing that, one usually does not account for problems as, for example, defective seals at the end of the second step, what would require to unstuff all the envelopes.

In contrast to the large-batch, there is the small-batch approach, which at first could seem less efficient, but that in fact could allow to ship a finished product in faster cycles. That

was how, in the post-World War II, the Japanese company Toyota developed the process of lean manufacturing to efficiently produce automobiles one by one, without having the same economy of scale and resources than the United States had (Ries, 2011, pp. 186-187). Therefore, "working in small batches ensures that a startup can minimize the expenditure of time, money, and effort that ultimately turns out to have been wasted" (Ries, 2011, p. 188).

Reducing batch size is a key decision to ship and learn from customers faster, which is essential for the startup's competitive advantage (Ries, 2011, pp. 192-193). Small batches also allow companies to minimize inventory while avoiding, at the same time, stockouts, using a technique called *pull*, consisting of filling the gap of inventory as needed, sending small quantities down the supply chain as they are required.

According to Ries (2011, pp. 207-208), a company grows by growing its customer base, which can happen through four different ways. The first is by word of mouth, when customers are so enthusiastic about the product or service that they naturally tell their friends and family. The second is as a side effect of product usage, as an example of Facebook or PayPal, in which non-users are exposed to the service by the invitation of actual users. The third is through funded advertisement, in which the customer acquisition cost has to be less than the marginal revenue. And the fourth is through repeat purchase, which is often the case (rarely a company offers a one-time product or service, but that exist).

These ways to grow the customer base gives the company momentum to make the feedback loop cycle faster and faster, through what Ries (2011, pp. 209-218) calls the three *engines of growth*, each one with a different key metric. The first one is called the *sticky engine of growth* because if relies on a high customer retention rate, so the metric is to make the rate of new customer acquisition be higher than the churn rate. The second is the *viral engine of growth*, in which customers advocate the product, not necessarily intentionally, but as a consequence of its usage, and its metric is the viral coefficient that tells how many new customers each existing customer can bring in average. The third is the *paid engine of growth*, in which companies have to invest money to acquire customer, and that cost has to be lower than the value the customer can bring through his "lifetime" with the company, measured by the LTV, or lifetime value. Ries (2011, p. 219) remarks

that often more than one engine of growth can operate simultaneously in the same company, however successful companies usually focus most of the effort in making one of the engines run well.

* * * * *

The key takeaway of the Lean Startup method, for this work, lies on the fact that a company that is developing a new product should not spend too much time and resources coming up with the initial hypotheses, but rather create a first scarce assumption that is good enough for quickly building a minimum viable product, and validate the initial hypothesis as soon as possible, at least partly, based on potential customers' feedback.

Customer feedback is the most valuable data, which quickly evolves and changes, and for this reason, the cycle of building, measuring, and learning, should be run as fast as possible to allow lean development and fast business decisions. By doing that, a company can accelerate with more solid foundations towards growth.

Further in this work, the case of a consulting firm developing and commercializing its own technology product is analyzed against the Lean Startup method, to evaluate if and how customer feedback is being used to iteratively develop a valid product for an existing market.

2.4 Casting

Casting approach is the one created and adopted by the case company studied in this work. The method was developed based on the need for understanding the end-user needs in a business-to-business (b2b) context, in which companies commercialize solutions and services to other companies to help them solve their users' needs (Lehikoinen, et al., 2016).

Casting, as discussed by Lehikoinen, et al., (2016), is a service production approach originated in the interface between user-centered design, service design and agile software development, and it consists of a series of practices, tools, and methods to innovate, design, and build solutions with engineering accuracy. This framework is called *The Casting Triangle* (Figure 2.9).

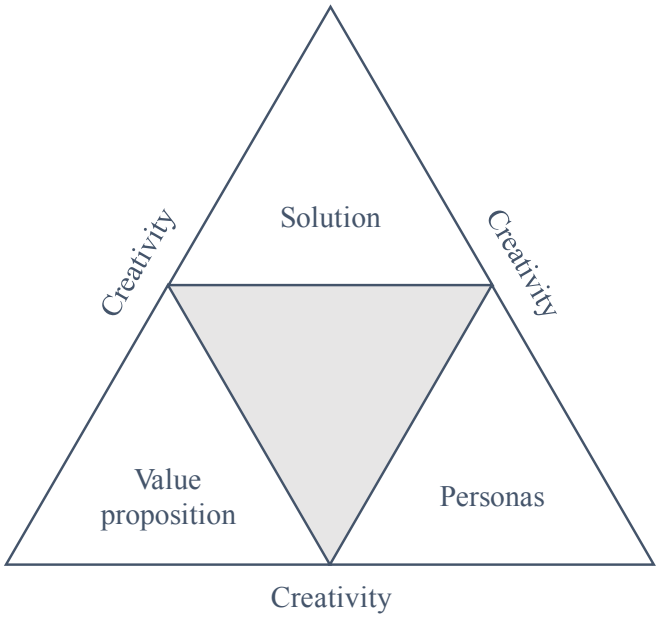

Figure 2.9 – The Casting Triangle (Lehikoinen, et al., 2016).

As in Figure 2.9 the three high-level components of The Casting Triangle, *Value Proposition*, *Personas*, and *Solution*, answer respectively the business-related questions of why, whom and what, and are detailed further in this section.

Lehikoinen, et al., (2016) states that the Casting method approaches challenges from three different perspectives. The first one is *Value*, which takes into consideration the business representing the system or the solution provider, the customer representing the service provider who needs the solution, and the end-user representing the ones who use the system. The second perspective is *Creative Teamwork*, which combines a multidisciplinary team that brings artistic creativity, engineering productivity, and business thinking, while maintaining the core concepts of the original idea and knowledge of the customer and end-user needs. Finally, is the perspective of *Cumulative Knowledge*, which brings the perception that new important information about customers, end-users, and market can be brought into the project at any time, and could significantly influence the design process.

2.4.1 Value Proposition

One of the first tasks in Casting is to create or review the value proposition (Lehikoinen, et al., 2016). It is focused on the end-user needs, motivations, and problems, and should orient the design and development teams to create high-level ideas that empathize with and solve the end-users' issues (Lehikoinen, et al., 2016).

The value proposition should be based on paying customers and their needs, therefore it is essential that companies know who they are. In Casting, the value proposition is built on customer experience, involving a deep understanding of what will be the emotional and the practical benefits that the service will bring to its users, as well as challenges, because design decisions always create trade-offs (Lehikoinen, et al., 2016).

Lehikoinen, et al., (2016) reinforce that the value proposition needs to provide value to every stakeholder, and most importantly, a service or solution that fulfills this proposition, and therefore, extensive field study with potential users and the personas created from that will help the business to formulate a solid proposition.

According to Osterwalder (2010, p. 22), the value proposition describes the products and services that create value for a customer segment, and it is the reason why a customer chooses a company. Customer value creation can be achieved in the value proposition through, but not limited to, the following ways: *newness*, satisfying a new set of needs that customers did not know they had; *performance*, delivering something more efficient than what the customer had; *customization*, adapting products and services to a specific niche; *getting the job done*, by simply helping the customer to complete a task; *design*, making a product or service stand out because of user experience; *brand/status*, when the value is related to using and displaying a specific brand; *price*, by offering a similar value as other companies, but more affordable; *cost reduction*, helping customers reduce costs, which is usually related to b2b; *risk reduction*, minimizing customers' risk when purchasing and using products and services; *accessibility*, making products and services available to customers who previously did not have access; and last, but no least, *convenience/usability*, making an existing product or service easier and more convenient to use (Osterwalder, 2010, pp. 23-25).

2.4.2 Personas

The personas method exists since the late 1990s, and evolved from a tool for software development to work with products, services, marketing, and communication (Nielsen, 2013, p. 2). A persona is a description of a fictitious user built from knowledge about real users, differing from an archetype or a person because it focuses on a specific area to highlight attitudes that are relevant to a specific context (Nielsen, 2013, pp. 2, 7).

According to Lehikoinen, et al., (2016), personas in user experience design are used as a tool for facilitating communication and orient the design. Moreover, it can closely represent user needs and give insights to conceptualize user interfaces.

As Casting is a framework for the b2b environment, personas should represent both the customers and the end-users, and should be present in the whole service production (Lehikoinen, et al., 2016). The authors also add that personas are a result of immersive qualitative user research, providing meaningful aspects to represent real customers and end-users of different kinds, comprising motivations, goals, contexts, and pain points.

According to Osterwalder (2010, p. 131), a good way to start sketching customer profiles is by using the *Empathy Map*, which helps the company to go beyond demographics to understand behavior, concerns, aspirations and the customer's environment. In more detail, the Empathy Map is meant to create a hypothetical customer and analyze what he or she sees, hears, thinks, feels, says and does, as well as mapping his or her difficulties, frustrations, and desires. Osterwalder (2010, p. 133) still points out that, even in a b2b environment, the Empathy Map can be used, because behind companies there are always people who are in charge for the decisions.

2.4.3 Solution

With a value proposition and personas in hands a solution can start to be shaped, because now the teams have a clearer vision of whom to target and why (Lehikoinen, et al., 2016).

The person responsible for keeping the project's goal clear and ensuring that the team is following the value proposition and maintaining the personas in focus is called the *Casting Master* (Lehikoinen, et al., 2016).

The Casting Master organizes review meetings to keep design and development teams on the right track starting with the step of *Concept Design*, in which several ideas are proposed to combine customer and end-user needs with the value proposition, converging to a concept that is often represented by customer journeys, storyboards, videos or lightweight demos; followed by the *Validation* step, in which customers and end-users are involved to test core elements of the concept design; finalizing with the *Design and*

Development step, in which the concept is refined based on the validations, and the personas will serve as an orientation to user interface designers, software architects, and developers (Lehikoinen, et al., 2016).

* * * * *

The key takeaway, for this work, regarding Casting, which is the proprietary approach that the case company uses for developing its services, is that it is multidisciplinary and user-centered. The approach combines: business professionals to create a value proposition that is meaningful for the customer; designers to research real users, develop personas, and conceptualize interfaces and experiences; and technology professionals to implement those solutions hand-in-hand with the client. All the time the team is supposed to be open to creative insights that can reshape the end goal to converge in what the end-user really wants.

Further, the empirical part of this work analyzes the usage of this approach within the company that has developed it, but under the light of developing and commercializing a technology product of its own, rather than using it for serving its customers.

2.5 Framework of this study

Section 2.1 describes the challenges that consulting firms face when it comes to scalability. Although those companies can grow, they have difficulties for scaling due to the lack of operating leverage, meaning that an increase in the gross margin often causes an increase in the operating expenses, approximately at the same rate. The main reason for that are the high variable costs represented by consultants' wages. Further in this work, a real consulting firm is analyzed against this theory, to validate the scalability challenges.

Under the light of this challenge, and with the intent to analyze how a real consulting firm treats the development of a new technology product, sections 2.2 and 2.3 present, respectively, the Customer Development model and the Lean Startup method, both showing how technology startups approach product development to build scalable business models. In addition, section 2.4, presents Casting, the case company's proprietary framework that provides a high-level vision of the business model and how to approach challenges from a service production perspective, helping its clients to solve their challenges.

The main differences between Customer Development and Lean Startup, when compared to Casting, rely on scope. The first one heavily focuses on very early stages for understanding the most about customers even before having more concrete ideas about the product that will be developed. The second, focus on the driving force for a company to gain momentum and accelerate quickly and lightly, being able to respond fast to changes in customer needs and market requirements, and reshape their product to be successful. In comparison, Casting focuses on the whole process, end-to-end, to design or redesign a solution, based on end-user needs and business requirements, for a customer that is developing a product, therefore staying on a more supportive and strategic level.

Creating an analogy, the Customer Development approach is the one that discovers the combination of a good soil and fertilizer that can be suitable for a set of possible seeds. The Lean Startup provides sun and water to quickly grow the seeds, testing in small batches those that will yield faster in that soil, providing the best return. Casting, in its turn, is responsible for helping the farmer to get the best out of his available resources and soil, in a given environment.

Given the theoretical differences and possibilities with those three approaches, this work further studies which elements of each framework is present in a specific process of a consulting firm, historically experienced to help the farmer, but now striving to grow crops on its own.

3 RESEARCH DESIGN AND METHODS

3.1 Research questions

This study analyzes a new product development in a fast-growing consulting firm specialized in user experience, business design and digital services production. The *case company* and the *case product* by the time of this study are presented in more detail in section 3.3.

The theoretical background of this work brings topics such as growth versus scalability of business models, customer-centric product development, fast-paced prototyping, iteration of digital products, positioning and marketing of novelties, and the case company's proprietary approach for business design. All of them were presented and explored in order to yield four research questions.

The *first research question* explores the theoretical difficulties that consulting firms have to scale despite of their growth, seeking to validate the theory with real world data gathered from the case company. Thus, it asks:

1) To what extent scalability and growth are related in the case company?

The *second research question* focuses on understanding the process that the case company uses to develop the case product. Thus, it asks:

2) What is the case company's process for developing the case product?

The *third research question* aims to understand the underlying practices and challenges of the development process according to the team that is directly involved in the development of the case product. Thus, it asks:

3) What are the practices and challenges of the team for developing the case product?

The *fourth research question* assesses how well the case company, which is originally a consulting firm, can act as a startup while developing its own technology product. Thus, it asks:

4) How well does the value proposition of the case product detaches from a consultancy-oriented thinking and approaches a startup-oriented thinking?

3.2 Methodology

The first research question uses the case company's financial reports and figures to validate the hypothesis that consulting firms have low operating leverage, and therefore, have difficulties to scale despite of their growth.

The second question is related to the current process that is being used to develop the case product. It analyzes what steps the company has planned and has been following throughout the development until the commercialization, comparing the steps with the theoretical process described for startups.

The third question is intended to understand, from the perspective of the team that is involved with the case product development, the underlying practices and challenges in contrast to the theoretical frameworks that describe those practices used by startups.

The fourth and final research question looks into how much the case product's value proposition shows whether the case company has in fact adopted a startup oriented vision for this particular case, rather than remaining in the consulting vision, also according to the theoretical frameworks presented earlier.

3.3 Case company and the case product

3.3.1 Case company

Leadin Oy, referred in this work as *case company*, is a Finnish company founded in May 2009 with a primary focus of being a User Experience and Nordic Design specialist. Its mission states:

> *"We exist in order to help our clients deliver products and services with outstanding User Experience. Our inherent passion, premium talent and smooth cooperation between user experience and software development teams guarantee this." (Leadin Oy, 2017-a).*

In 2013, the company combined its User Experience and User Interface design knowhow with software development for web, mobile, and embedded systems, offering the *Service Production* approach, illustrated in Figure 3.1 (Leadin Oy, 2013; Leadin Oy, 2017-b).

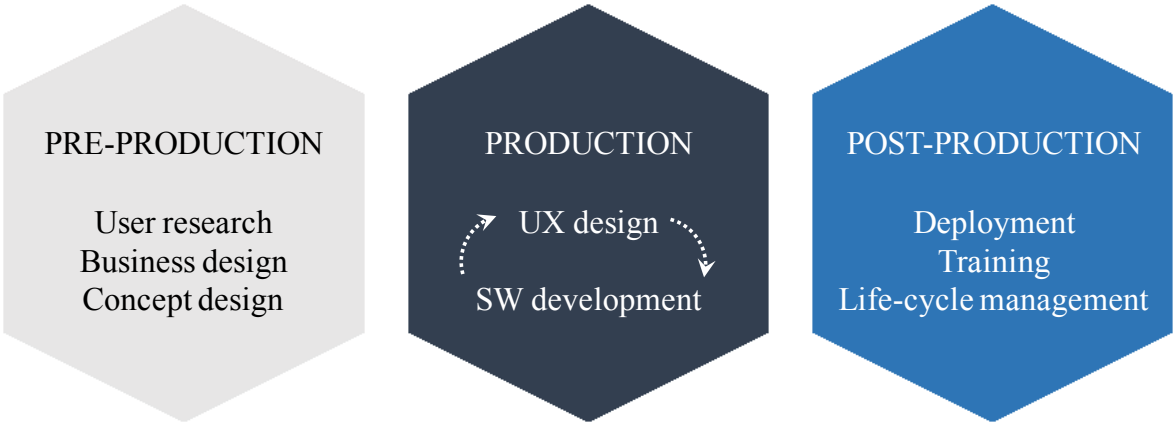

Figure 3.1 - Service Production (Leadin Oy, 2017-b).

In the *Pre-Production* phase, the company focus on gathering information about the client's value proposition, market context, and business objectives, analyzing stakeholders and user groups, being user research the most important activity in order to map end-users' motivations and expectations, resulting in personas (see 2.4.2) that describe each group. In addition, personas, value propositions, and stakeholder studies support the creation of concepts that are validated with the client (Leadin Oy, 2017-b).

In the *Production* phase, the focus is to combine User Experience Designers and Software Developers to design and bring to life concrete digital solutions and systems to the concepts validated in the Pre-Production (Leadin Oy, 2017-b).

Finally, in the *Post-Production* phase, the company works on the deployment of the systems developed in the Production phase, providing also training, support guides, videos, and full documentation of the solution. Moreover, this last phase includes the possibility to help the client, gather, aggregate, and summarize users' feedback, to continually improve the solution (Leadin Oy, 2017-b).

Leadin Oy has five sites, three being in Finland (one in Helsinki and two in Tampere), one in Wales (Swansea), and one in Germany (Munich) (Leadin Oy, 2017-c).

3.3.2 Case Product

The *case product* referred in this work is known as *LeapDB*, a shorthand for *Leadin Personas Data Base*, which is under development since about mid 2016, to be a real-time data analytics product for existing and new customers (Leadin Oy, 2017-e).

Leadin expertise, as presented in 3.3, is to design, implement, and deploy user-oriented digital services. For achieving this during the design, the company uses its expertise to gather information about the customer's business and potential users of the final solution to create personas that will guide the user experience and interface design, as well as its implementation.

The use case for LeapDB is, after the digital service is deployed and in use, to gather usability data based on personas representing users' behavior and motivations. Its value proposition is to provide clients with concrete data for decision making, and make use of historical data to improve and anticipate customer's challenges (Leadin Oy, 2017-e).

3.3.3 Subject

As the case company has been growing and changing fast, this work is limited by the events and data until the beginning of July 2017. By this time, the company had 91 fixed employees, and an expectation to reach 8M€ of turnover by the end of that year, in comparison to about 4M€ during the year of 2016 (Leadin Oy, 2017-g).

The subject of this research consists of a group of 11 employees directly involved in the case product's development, not necessarily working on a daily basis on it, but involved somehow with the process, and all of them are allocated in the office of Tampere, Finland. Two of those employees are in a management position and have business background, three are designers, and six are developers or data specialists, more focused on technology.

3.4 Methods

This work consists of an in-depth study of a consulting firm developing a proprietary technology product. The approach is qualitative, and the four research questions defined in section 3.1 are answered using each one a method of data collection, specified in the next section.

3.4.1 Data collection

Data collection for scalability

First, to answer the first research question regarding the scalability model, financial figures were obtained in official financial reports, provided by the company's CEO, which are made commercially available by Suomen Asiakastieto (Leadin Oy, 2017-d).

The most important data gathered from the report shows the turnover, and expenses with material, personnel, and other operating expenses, and is represented in Table 3.1.

Table 3.1 - Historical data of turnover and operating expenses (kEUR)

	2009	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*
Turnover	30	301	971	1370	1618	1804	1743	3819
Materials and services	1	12	49	18	185	585	411	278
Personnel expenses	22	113	534	738	943	719	763	2231
Other operating expenses	11	55	144	279	329	385	430	909

Data collection for the development process

The second research question, regarding the product development process, leads to the second set of data, a series of meeting minutes, reports, and presentation material, which were obtained from two internet-based sources: the company's Confluence[2] pages, where documents and presentations are stored; and the company's Slack[3] discussions, which is a communication tool widely used by the team.

Both references (Leadin Oy, 2017-e; Leadin Oy, 2017-f) have restricted access and the data disclosed in this work was previously agreed with the company.

The Confluence pages for the case product contains two main subsections, named here as *Overview* and *Development*.

The *Overview* section describes definitions of the product, workflow, notes from meetings, and plans for further development (Leadin Oy, 2017-e).

[2] Confluence is a tool developed by Atlassian for content collaboration (Atlassian, 2017).
[3] Slack is a tool for team communication (Slack, 2017).

In the *Development* section, it is possible to find more details on the process itself, as well as methodologies of development. Moreover, there are links for the version control system with the source code, instructions to install the development environment, and a set of technical requirements for integrating external frameworks that are being used to develop the case product (Leadin Oy, 2017-e).

Finally, the last data collected for this set is in the format of an extensive discussion forum regarding the project, starting on the 15th of December 2016 up to the beginning of July 2017. It is important to mention that the data was chosen to be collected up to that point, because that was the time when this work was being developed.

Data collection for the practices and challenges of the team

The third set of data, to answer the question about the underlying practices and challenges within the development team, was obtained through a survey (APPENDIX I - Survey questions), applied via a structured online form. The questions first categorize the cohort according to background and weekly dedication on the case product development, and then assess how the team perceives the use of the three theoretical frameworks of this study, Customer Development, Lean Startup, and Casting, with indirect multiple-choice questions. Finally, the last section of the survey guides the respondent to self-assess the current product development practices.

For assessing the fit to the Customer Development model, three questions are presented to assess: what is the process orientation (customer or product); how early potential customers were involved; and how much of the current state of the product had been actually validated by customers. For the Lean Startup method, the questions assess: how much of the initial hypotheses were confronted; how fast the team was testing and learning; and how flexible the strategy was to pivot or persevere. Finally, for the Casting framework, the questions assess: the level of involvement of key stakeholders; the clarity of the value proposition for potential customers; and the level of fidelity of the initially created personas in relation to the end-users.

It was decided to not use agree-disagree questions in this survey to avoid acquiescence response bias, meaning that respondents tend to agree more than disagree regardless of the

content of the question, and also to avoid straight-lining, which happens when respondents answer a series of statements too fast, repeating answers without paying full attention to the questions (Liu, 2014). Therefore, questions have their own rating scale.

The last section of the survey poses a couple of open-ended questions for self-assessment, trying to understand what is considered to be done right, what is considered to be done wrong, and what else could the team do to improve.

It is important to mention that prior to applying the survey to collect this set of data, the questionnaire was iterated with a few employees from outside of the focus group to scan for errors and validate the easiness to understand the questions.

Data collection for the thinking orientation of the case product

The fourth data set, for assessing the business thinking orientation of the case product, was collected in a workshop that took place in the company's premises in the city of Tampere, in Finland, with the participation of six employees, among which there was one UX Designer, one UX Developer, one Data Engineer, one Business Developer, and one Director.

The Product Owner suggested the use of the Value Proposition Canvas to co-create a business vision for the value proposition of the case product.

The Value Proposition Canvas was introduced by Osterwalder, et al., (2014, pp. XVII, XX) to provide tools for creating, managing and renewing value propositions and business models of products and services, and it is a zoom into the Business Model's dimensions of Value Proposition and Customer Segments, as seen in the Business Model Generation, also by Osterwalder (2010).

According to Osterwalder, et al., (2014, pp. VIII-IX), the value proposition design helps companies to understand the patterns of value creation, leverage team skills, focus on ideas that work, and design, test, and deliver what customers want.

The Value Proposition Canvas has two sides, as seen in Figure 3.2. The right side is the *Customer Profile*, which clarifies the customer understanding, and the left side is the *Value*

Map, which describes how the company is creating value for the customer. Both sides should meet each other to achieve what is called *Fit* (Osterwalder, et al., 2014, p. 3).

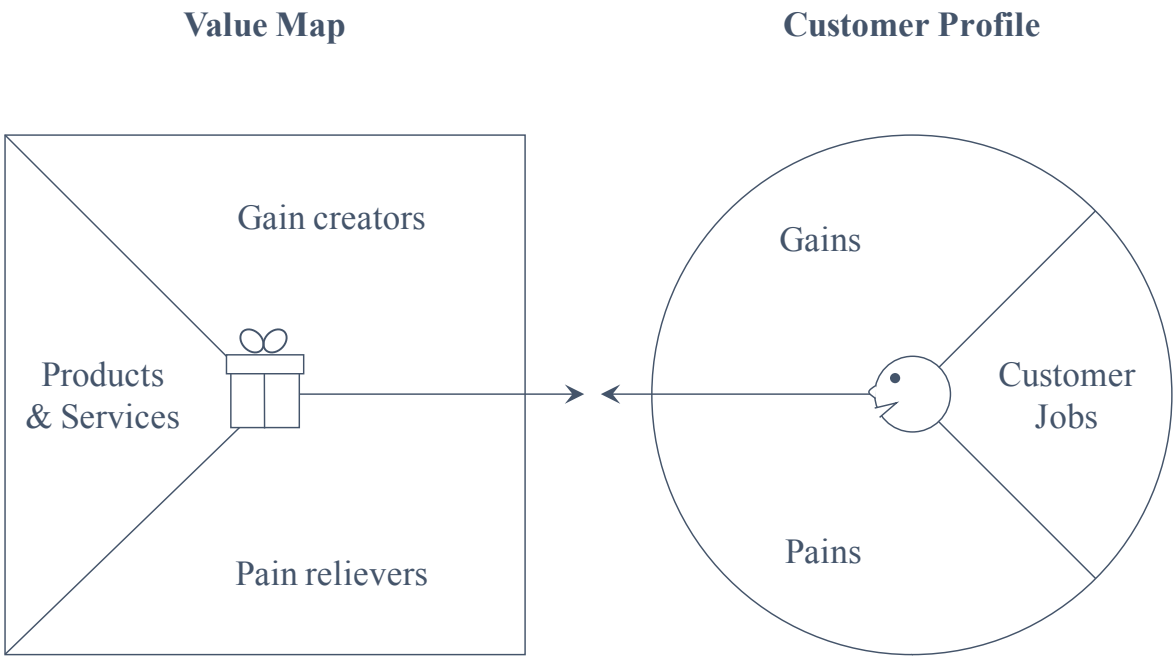

Figure 3.2 – Value Proposition Canvas (Osterwalder, et al., 2014, pp. 8-9)

On the right side, the Customer Profile is composed by the *gains*, describing concrete benefits that the customers are pursuing, the *pains*, which are risks and obstacles customers face when performing their tasks to achieve their goals, and the *customer jobs*, that describe what customers are trying to get done. On the left side, Value Map, there are the *gain creators*, describing how to create the customer gains, the *pain relievers*, describing how to alleviate the customer pains, and a list of the *products and services* that the value proposition is built around (Osterwalder, et al., 2014, pp. 8-9).

The *fit* is found when customers get enthusiastic about the value proposition, which happens when they can get important jobs done, extreme pains relieved, and essential gains in hands (Osterwalder, et al., 2014, p. 42).

Osterwalder, et al., (2014, p. 49) state that the fit occurs in three stages. The first stage happens on paper, called the *problem-solution fit*, when the company has evidence that some jobs, pains, and gains are important to the customer, and the value proposition addresses them. The second stage happens in the market, called the *product-market fit*,

when the company has evidence that the products and services, pain relievers, and gains are really creating value for the customer and gaining celerity in the market, which takes time. And third, is the stage that happens in the bank, called *business model fit*, when the company has evidence that the value proposition can leverage a profitable and scalable business model.

An important point cited by Osterwalder, et al., (2014, p. 50), and that is suitable for the case company, is that customers in the b2b environment are organizations that are composed by several stakeholders, and each one of them has a different profile with different jobs, pains, and gains, being important to identify the key ones and design a Value Proposition Canvas for each one of them.

In practice, the data collected during the workshop consists of the sticky notes that the participants placed on the Value Proposition Canvas, illustrated on Figure 3.3, and more importantly, the notes from discussions that were fomented during the whole process.

Figure 3.3 - Value Proposition Canvas during the workshop.

3.4.2 Data Analysis

Data analysis of scalability

The first data set comes from the company's financial report, which contains key financial figures as revenue and operating expenses. This data set is analyzed by creating a historical graph of revenue versus operating expenses, and comparing them with the theory of scalability studied earlier in this work.

The graph itself is a scatter plot of two series of data in the Y-axis against the time in years in the X-axis. One of the series consist of the yearly registered value for revenue, and the other series, the yearly registered values for the operating expenses, which are summed up by materials and services, personnel expenses, and other expenses, all found in the financial report.

As a means of making an analysis based also on numeric values, the linear trend lines can be created for the graph in order to extract the equations' slopes, which should be expected to be virtually the same if both lines are parallel, meaning that revenue and operating expenses evolve at the same rate. For drawing the trend lines, it should be a good practice to exclude data from the first one or two years, to avoid inconsistencies generated during the less stable period of starting a business.

Data analysis of the development process

The second data set, as previously mentioned, is a series of internet-based documents from the case company, as meeting minutes, reports about the project, and the history of a discussion forum dedicated to the case product. This data is analyzed by reading all the electronic documentation and discussions available in the company's intranet, and by drawing schemas to find out how the process to develop the case product looks like, and what are its characteristics.

When reading the documentation, the focus has to be on the elements that mention somehow the steps required to achieve the final product, and what the final product consists of. In order to analyze the data against the theory of Blank (2013) and Ries (2011), attention has to be paid to any mention about: involving customers early in the process; some possible iterative characteristics in the process; the frequency of testing iterations of the product with potential customers; and the way the team structures what they learn from customers, to apply on the sequential iterations of the product.

Data analysis of the practices and challenges of the team

The third data set comes from a survey applied with 11 employees, from which a total of eight effectively answered. All of the respondents have been involved with the case product development for at least once during the month that preceded the survey.

The way this data is analyzed is by summing up all the similar answers in each multiple-choice question, and drawing bar graphs from them in order to visualize how concentrated or dispersed the answers are. In addition, the final open questions are expected to highlight well the challenges of the team, being a very straight forward data to analyze. From that, conclusions can be drawn regarding the underlying practices and challenges in contrast with the frameworks presented in sections 2.2, 2.3 and 2.4.

Data analysis of the thinking orientation of the case product

The fourth and final data set is result of a workshop to define the value proposition of the case product, which had the participation of six employees, two of which are in the management level.

The workshop was divided in two main sessions to cover both dimensions of the Canvas: The Customer Profile, and the Value Map. The detailed schedule is shown in Table 3.2.

Table 3.2 – Value Proposition Canvas workshop's timetable.

Time	Activity
09:15 – 09:45	Introduction on the Value Proposition Canvas and the challenge
09:45 – 10:15	Customer Profile: customer jobs
10:15 – 10:30	*Coffee break*
10:30 – 11:30	Customer Profile: pains and gains
11:30 – 12:45	***Lunch break***
12:45 – 13:45	Value Map: value creators and pain relievers
13:45 – 14:15	Value Map: products and services
14:15 – 14:30	*Coffee break*
14:30 – 16:00	Finding the Fit
16:00 –	Final words

This data set is analyzed based on the sticky notes defining the elements of the value proposition created by the team, and the observations made during the workshop in what regards the kind of topics and orientation of discussions, as well as the attitude and expectations of the team involved with the product development in relation to what should be expected from a startup product development team, as presented in the theoretical frameworks in sections 2.2, 2.3 and 2.4.

The analysis done during the workshop can provide findings on how much the business vision is in fact detached from a consultancy-oriented thinking towards a startup-oriented thinking, the latter being more likely to work with scalable models.

3.5 Procedure

The first element to analyze is the financial data in order to extract the key figures needed for plotting the graphs that compare turnover and operating expenses. The expected result according to the literature is that turnover and operating expenses will evolve hand in hand, without significant detachment, showing signs of low scalability.

By validating the scalability theory, the next step is to understand the current product development process in the company, by both analyzing internal documents and the survey results, and comparing them with the theoretical frameworks based on the practices for startups for product development. The survey results should also point the key challenges faced by the consulting firm when venturing into product development.

Lastly, the workshop insights can complement the perception about the challenges faced by the case company, and provide a vision of how the value proposition of the case product is seen by the eyes of its owners.

4 FINDINGS

This chapter presents the findings of this study in four sections, respectively, for each one of the four research questions.

4.1 Scalability challenges and growth

To answer the first research question of *to what extent scalability and growth are related in the case company,* the case company's financial data, since its foundation in 2009, was analyzed.

The evidences found in this section corroborate with the hypothesis that consulting firms tend to have low operating leverage, confirming the difficulties to scale, even though they can grow at relatively high rates.

As discussed in section 2.1, a company should have operating leverage to scale, meaning that fixed costs should be typically bigger than variable costs so its gross margin can increase faster than its operating expenses.

Figure 4.1 shows the case company's turnover and operating expenses, with data extracted from the company's financial report (Leadin Oy, 2017-d). The operating expenses are composed by *materials and services*, *personnel expenses*, and *other expenses*.

Figure 4.1 - Case company's turnover and operating costs in Finland between 2009 and 2016.

Figure 4.1 shows that turnover and operating expenses have a very similar behavior. This is clearer if one look at the leap during the year of 2016 in which the turnover grew about 119%, but consequently, the operating expenses also grew at a similar rate of about 113%.

Looking a bit closer to the period of 2016, it is interesting to observe the company's operating efficiency, represented by its *operating margin*, which accounts for the operating profit in relation to the turnover (Investopedia, [no-date]-d). The operating margin accounts for 8,0% in the beginning of that period and for 10.5% in the end of the same period, representing in fact a relative increase during that year.

Still in the period of 2016, the number of employees increased from 15 to 43, but still, the operating profit per employee, which can be another indicative of scalability, was maintained at 9,3 kEUR.

By drawing linear trend lines on top of the same data, as shown in the dotted lines in Figure 4.2, but excluding the first two years to avoid the boundary conditions after the business was started in 2009, one can observe again how both turnover and operating expenses grow nearly at the same rate.

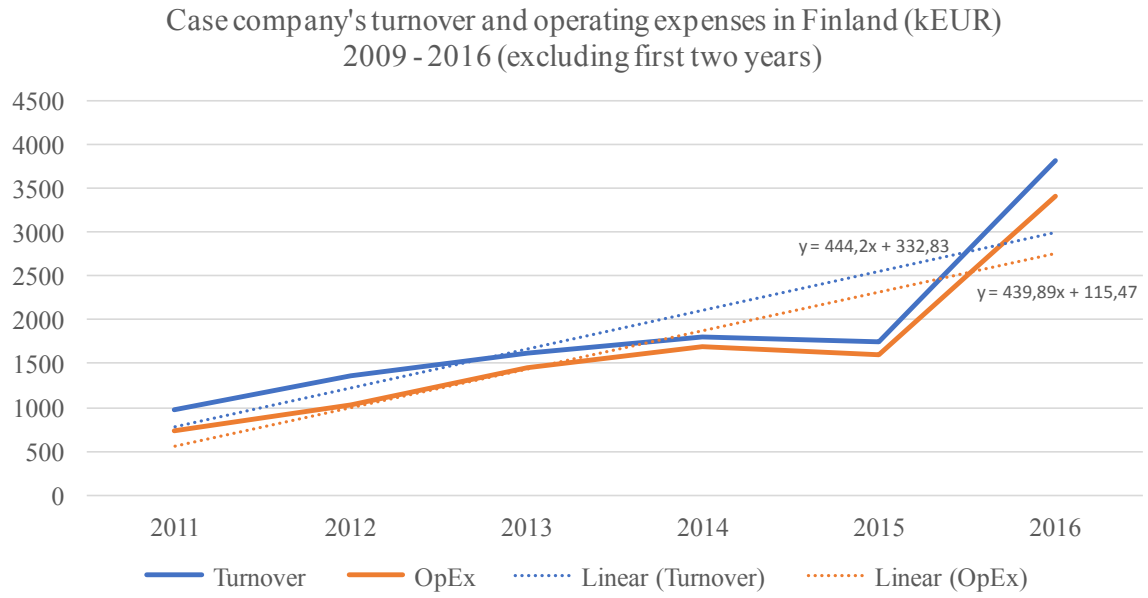

Figure 4.2 – Case company's turnover and operating expenses in Finland between 2011 and 2016.

The trend lines for both turnover and operating expenses are basically parallel, numerically proven by two virtually equal equations' slopes of approximately 440.

4.2 Product development process

Exploring the second research question, which searches for *what the case company's process for developing the case product is*, the main finding is that the process (shown in Figure 4.5) is closer related to the Product Development Model (section 2.2.1) rather than to the Customer Development Model (section 2.2.2), as seen in Blank (2013). Moreover, iterative approaches for development were adopted, and customers were involved early in the process even though the learnings and actions taken from those learnings were not clearly described, as expected in Ries (2011).

The first interesting finding is illustrated in Figure 4.3, showing the schematics of the value proposition of the case product, in which end-users provide usability data to the target service, the database and server gather and process the data, and the analytics platform provides service owner analysts with insights based on that usability data (Leadin Oy, 2017-e).

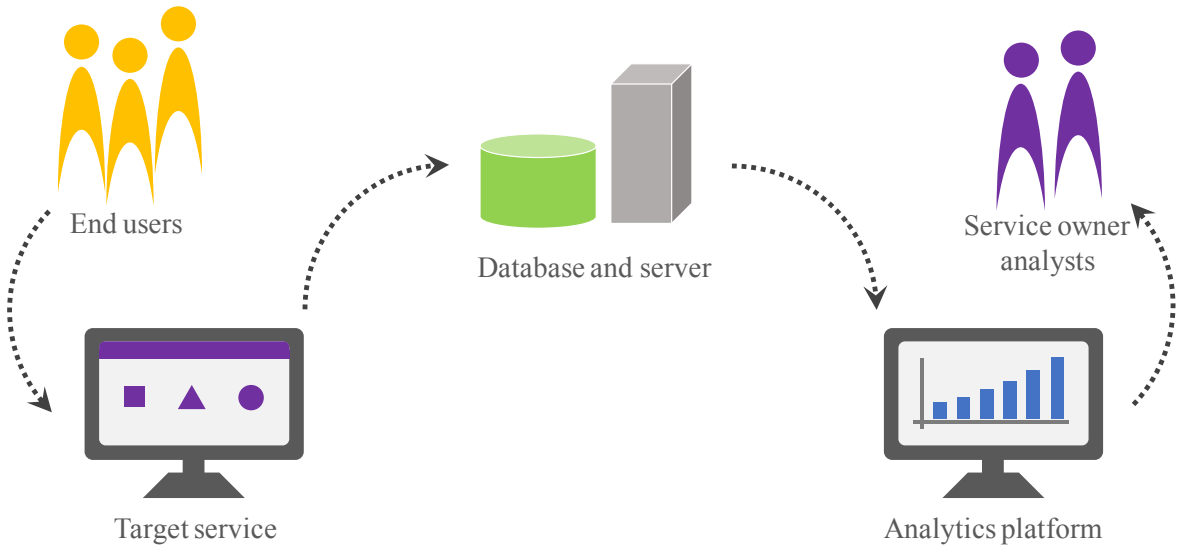

Figure 4.3 – Schematics of the value proposition of the case product (Leadin Oy, 2017-e).

A second interesting finding is illustrated in Figure 4.4, concerning the case product's output. In the schematics, the analytics platform of the case product is integrated in the three stages of the service production, as presented in section 3.3, by providing: a digital version of personas and documentation of design drivers in the Pre-Production phase; an Application Programming Interface for developers to integrate the analytics platform into the service implementation in the Production phase; and, in the Post-Production phase, real-time insights based on personas, as well as analysis of feature usage, navigation path, and fault reports (Leadin Oy, 2017-e).

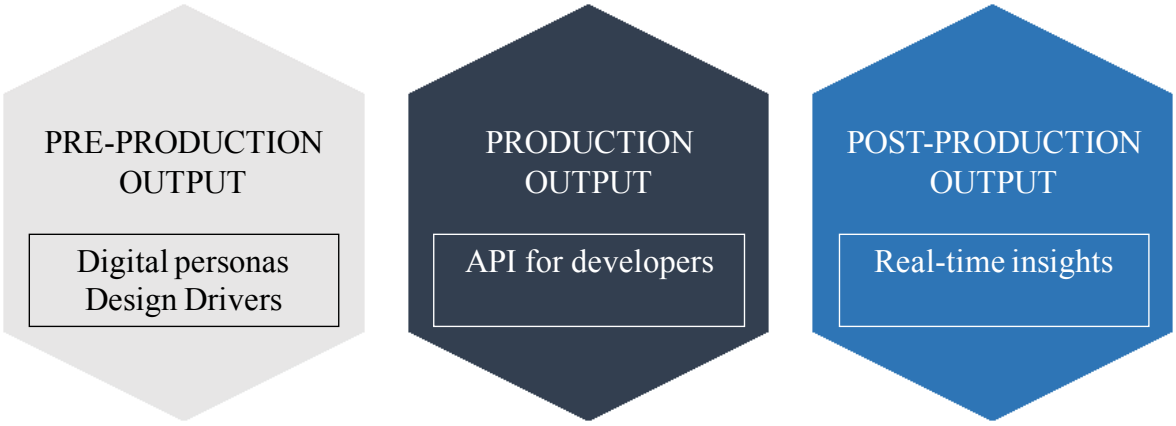

Figure 4.4 - Case product outputs within the case company's service production phases.

However, the most relevant finding when it comes to the process, comes from the initial flow defined for developing the case product, which is described in seven steps, illustrated

in Figure 4.5. It starts by defining the business drivers and product goals, then by creating personas of potential customers, followed by defining the design drivers, and designing the user interface and user experience concept. Next is the implementation, acceptance test, and deployment (Leadin Oy, 2017-e).

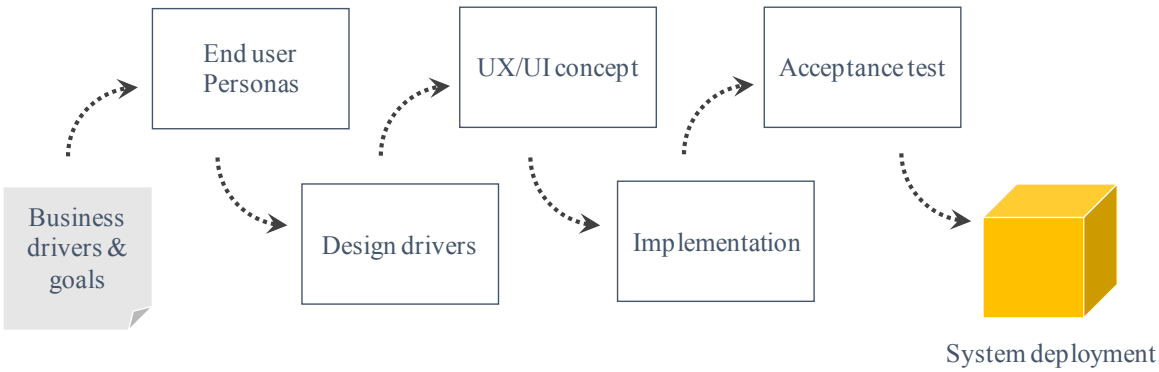

Figure 4.5 – Initial flow defined for developing the case product.

As discussed before, both Product Development and Customer Development models as seen in Blank (2013) are not mutually exclusive, but complementary. The latter provides a way for managing marketing and sales activities from a non-engineering perspective.

From the data, it is possible to observe emphasis on executing the product rather than first learning if the product really addresses customer's needs. Moreover, there is an apparent lack of milestones for sales, marketing, and business development, showing that the development process could have room to improve and adopt the practices from the Customer Development Model.

The case product has the value proposition of providing transparent usage insights from end-users throughout a digital service lifecycle. This is done by gathering usability data, which is then processed and visualized in a proprietary analytics platform for the service owner. All the insights in this platform are meant to serve as a basis for decision making to improve the service, give insights on new features, and even new business ideas (Leadin Oy, 2017-e).

Combined notes from a steering meeting and workshop, respectively on the 23rd of May and 8th of July 2017, reinforce the focus of the product on end-user analytics, creating

value by thoroughly understanding and presenting insight from end-users' activities. The notes also point out that the team had been learning through experimental pilots to iterate the offering. Moreover, it was decided on those events that the next steps of development should focus on refining the offering from a sales perspective, as well as adapting the product to the customers' technologies (Leadin Oy, 2017-e).

Another important finding related to the development process is that the product development, according to the company's documents, follows the Scrum methodology (Leadin Oy, 2017-e).

Scrum is a process framework to manage complex product development, and it has existed since the early 1990s (Schwaber & Sutherland, 2016, p. 3). It is a practical approach, based on empiricism, and presupposes that knowledge comes from experience, by employing a hands-on, incremental, and iterative methodology of development, to increase predictability and control risk (Schwaber & Sutherland, 2016, p. 3).

Still according to Schwaber & Sutherland (2016, pp. 5-6), the Scrum team is composed by: *Product Owner*, who is responsible for maximizing the value of the product and the work of the Development Team; *Scrum Master*, who is responsible to assure that the Scrum is well understood and followed by all; and *Development Team* itself, the ones who actively work on the product.

As a last important point of Scrum, Schwaber & Sutherland (2016, pp. 8-12) describe the events that should be followed by any team working with this agile methodology, which are: the *Sprint*, a time-boxed effort during which the Development Team creates a new increment to the product, and that can last for one month or less; the *Sprint Planning*, which is an event that happens in between Sprints to define what can be done in the following sprint and how the work will get done; the *Daily Scrum*, which is a 15-minute daily meeting to synchronize activities among the whole Development Team, reviewing what was done since the last Daily Scrum, and planning what will be done until the next one; the *Sprint Review*, in which the team analyzes what was done during the past Sprint

and make changes to the Product Backlog[4]; and finally, the *Sprint Retrospective*, which occurs after the Sprint Review and prior to the Sprint Planning, and evaluates the past Sprint with regards to people, relationships, processes, and tools, and evaluates what could be improved in that dimension.

Back to the findings on the Confluence pages, the case product is described to have a Product Owner, a Scrum Master, and three people in the Development Team. Moreover, there are two internal consultants, and an internal sponsor. The Product Backlog is maintained in Trello[5], and each Sprint lasts for two weeks (Leadin Oy, 2017-e).

The use of Scrum is a positive point when it comes to the agile development of the product. Based on the Lean Startup approach by Ries (2011), iterative and incremental methods are crucial to apply the *Build-Measure-Learn* feedback cycle. However, it is fundamental that every cycle generates a set of learnings that can be clearly applied to the next build step, in order for the team to measure what matters and steer the strategy accordingly.

As seen in section 2.3, Lean Startup, learning is the basic unit of progress, and early development of new products need to focus on learning what customers want, eliminating assumptions and learnings that are not relevant (Ries, 2011, p. 49). Although, tests with potential customers in the case product came relatively early in the case product, there seems to be no structured reports within the documentation validating the learnings to reshape the initial strategy.

Analyzing the company's Slack channel, the internal discussion forum created for the case product in the 15th of December 2016, messages about a preliminary demo of the product and technologies to be used in the development are one of the first subjects. Still in December, the analytics requirements for involving two potential clients were formalized, and the need for developing the first approach of a web-based user interface appeared. On

[4] The Product Backlog is a single dynamic list of everything that might be needed in the product, evolving and changing with the development (Schwaber & Sutherland, 2016, p. 13)

[5] Trello is an online tool that provides visual boards, lists, and cards, to organize and prioritize activities in projects (Trello, 2017).

the following day, the first sketch of the system's architecture was created (Leadin Oy, 2017-f).

These first discussions, already mentioning about customer requirements, show the early stage involvement of potential customers in the process, which is positive when it comes to the Customer Development Model by Blank (2013, p. 27), in which the first step is to understand whether the problem the company is trying to solve is important to the potential customers.

Starting the year of 2017, in January, the team defined standards on how the tracking for generating analytics data should be done, as well as naming conventions across different projects. Moreover, the technology stack for developing the web-based application was chosen and the Scrum team was formalized to start the first Sprint already around mid-January (Leadin Oy, 2017-f).

In the end of January, the team had a first rough version of the user interface running on a demo server (Leadin Oy, 2017-f). Also, on the following couple days, the existing documentation was gathered in the Confluence pages, the same that are also analyzed in this study.

In a bit more than one month, the team departed from a set of customer requirements to a live prototype, or in other words, to a minimum viable product that, according to Ries (2011, p. 93), is meant to be the fastest way to get through the Build-Measure-Learn feedback cycle and start learning as quickly as possible.

In March, the sprints started to last two weeks instead of one, and a couple of days later a key member joined the team, bringing knowledge on a main feature to be implemented (Leadin Oy, 2017-f).

By April, the team had run a demo for two potential customers, and important advancements in the user interface were achieved. Also, an authentication system was implemented, and by the end of the month a user experience designer jumped into the team to help designing the user interface for the web application. And during May, new insights

coming from a workshop with a potential customer showed different needs for the product under development (Leadin Oy, 2017-f).

Again, the fact of learning from customers and re-evaluating the strategy is core to the Lean Startup method, however Ries (2011, p. 49) reinforces that without structured experiments it is easy to get a wrong understanding on what customers want. With the case product, it is not clear how the learning process was carried and how those learnings were applied in the sequential iterations. In addition, Blank (2013, p. 28) adds up that the learning during the Customer Discovery, which is the first phase of the Customer Development Model, does not mean to collect a list of features from prospective customers or to run several focus groups, but rather, to discover if there are customers and a market for the initial product vision.

One gain at that point of the process though, was the acquisition of a first paying customer, which falls into the early stages of the Customer Validation, which is the second phase of the Customer Development Model. In this stage, the task is to create and field-test a repeatable sales roadmap by selling the product to early customers (Blank, 2013, p. 29). In contrast, the traditional Product Development Model would only acquire first paying customers after completely developing the product, and during the Alpha/Beta Testing phase (Blank, 2013, p. 5).

In the beginning of June, there was an internal workshop to define the current analytics offering, map the capabilities, ideate how to sell the offering, and compare the current product against possible competitors. And following that, in the beginning of July, a draft of the offering was done in the format of a Software as a Service (Leadin Oy, 2017-f).

On the one hand, the effort for formatting the offering could have started earlier and could also have been used to run tests. Ries (2011) gives examples of very early stage tests that can be done even before writing any line of code. On the other hand, putting effort to make the offering clear at this point, helps to start corroborating the business model, validating market, customers, and product value, and stablishing pricing and channel strategy (Blank, 2013, p. 29).

4.3 Underlying practices and challenges

The third research question answers *what are the practices and challenges of the team for developing the case product.* As the question states, it has the objective to assess the underlying development practices and challenges through the perception of the team that is directly involved with the development of the case product.

The first part of the survey shows the analyzed cohort by primary background and average weekly dedication in the project. From eight employees who effectively answered the survey, four defined their background as primarily in technology, three in design, and one in business. This result, illustrated in Figure 4.6, shows that most of the team has a technology background, what is expected when it comes to the development of a software product. The relative high participation of designers can represent an advantage when well-orchestrated. For Ries (2011, p. 90), designers should recognize that the customer profile is provisional until the strategy has been validated.

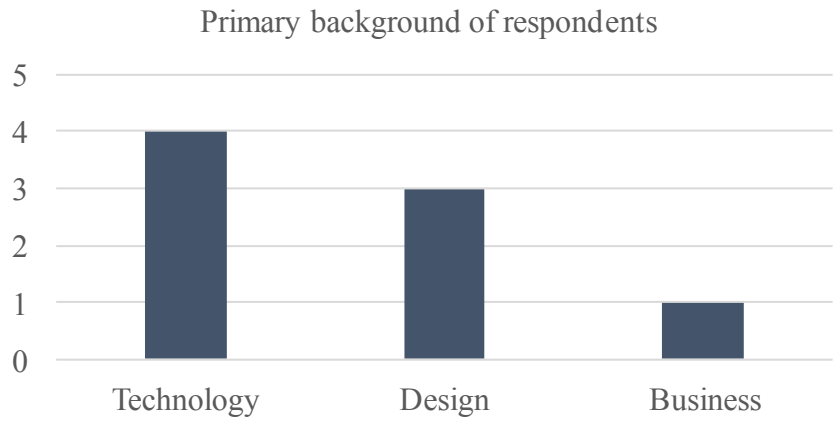

Figure 4.6 – Primary background of respondents.

With regards to dedication on the case product development, five of them dedicate less than one day a week, one of them from one to two days a week, another one from three to four days a week, and the last one, from four days to fulltime. Figure 4.7 shows that most of the team has a very partial commitment on the development of the case product. As all analyzed employees work full time in the company, either their main dedication is in a more relevant project for the company, or the resources are somewhat scarce for developing a proprietary product.

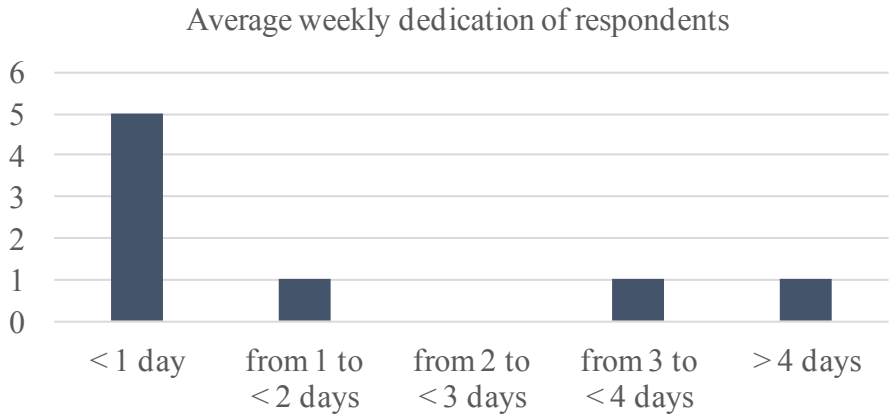

Figure 4.7 - Average weekly dedication of respondents.

The second part of the survey, with three sets of three questions, evaluates the fit of the product development practices with the theoretical frameworks studied in Chapter 2. It is important to remark that all the questions assess the respondents' perception. Therefore, the results are subjective, and without statistical relevance.

The first set of three questions assesses practices and challenges in the light of Blank's (2013) approach, addressing the fit with the Customer Development Model.

The first graph in the first set, illustrated in Figure 4.8, assesses whether the practices are product or customer-oriented. According to the perception of the respondents, the development practices are well balanced between being product-oriented and customer-oriented. This balance can be interpreted as a good sign as Blank (2013, p. 25) suggests that the Customer Development model is a companion to the Product Development model, and not a replacement for it.

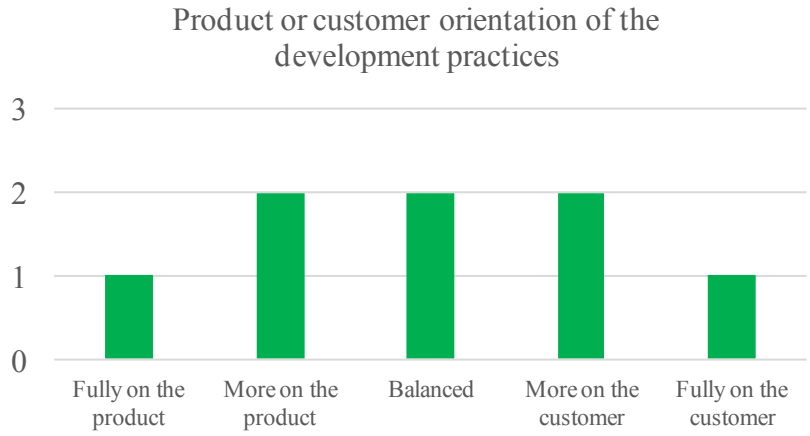

Figure 4.8 - Product or customer orientation of the development practices.

The second graph in the first set, illustrated in Figure 4.9, verifies whether potential customers have been involved early in the process. A strong premise in the Customer Development model is to learn about customers and their problems as early as possible in the process (Blank, 2013, p. 21). Therefore, three respondents have the perception that customers were involved in the process even before starting the development. However, for five of the respondents, customers were not involved before the start of the development process. This can show that the perception of the team is somewhat misaligned regarding the understanding of their customers.

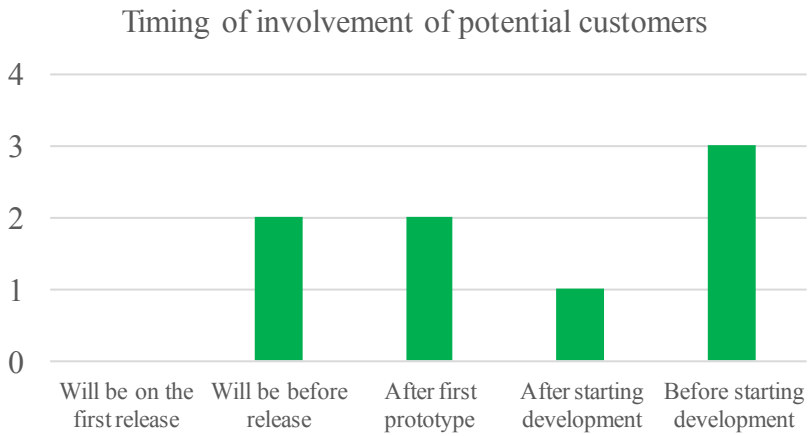

Figure 4.9 - Timing of involvement of potential customers.

The third graph in the first set, illustrated in Figure 4.10, checks whether technical features and business requirements have been validated by potential customers. By the end of the

Customer Validation step, according to Blank (2013, p. 29), the company should have the perceived value of the product validated and verified. The general perception of the respondents is that not the whole product is validated. This could mean that the process lacks validation, but also that validation is still in an early stage.

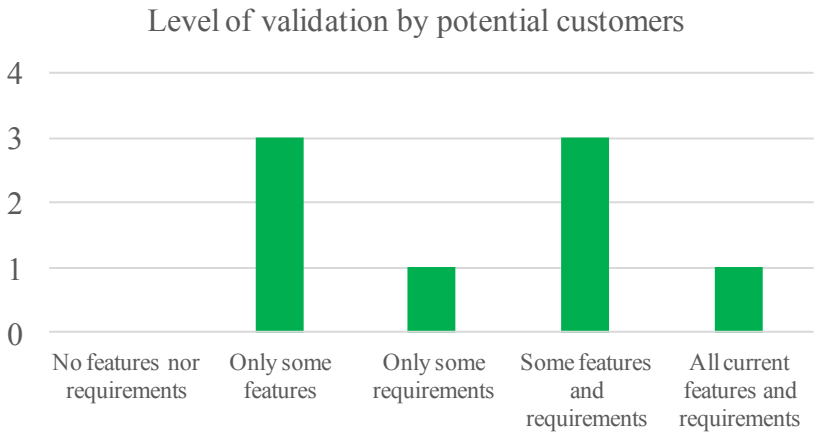

Figure 4.10 - Level of validation by potential customers.

The second set of three questions assesses practices and challenges in the light of Ries's (2011) approach, addressing the fit with the Lean Startup method.

The first graph in the second set, illustrated in Figure 4.11, assesses how much the product has changed since the initial hypotheses. As previously described in this work, the basic process supporting the Lean Startup method is the Build-Measure-Learn feedback cycle. Ries (2011, pp. 81-82) suggests that every cycle starts with a set of assumptions that are often wrong, and should change on the course of development. Thus, respondents' perception show that the initial hypotheses of the product have gone through significant changes. In this scale, there is no degree of good or bad, however, one should not expect answers in the range of non-defined or unchanged hypotheses.

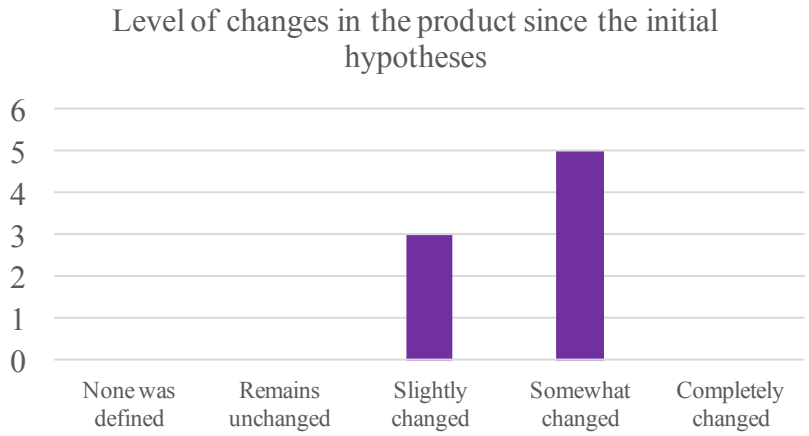

Figure 4.11 – Level of changes in the product since the initial hypotheses.

The second graph in the second set, illustrated in Figure 4.12, shows how frequently the product has been tested with potential customers. According to Ries (2011, p. 76), the goal of learning from customers in the development model is to iterate through the feedback cycle as quickly as possible. Nevertheless, for some of the respondents, tests with potential customers are rarely or never performed, which should be considered a point of concern for the management team.

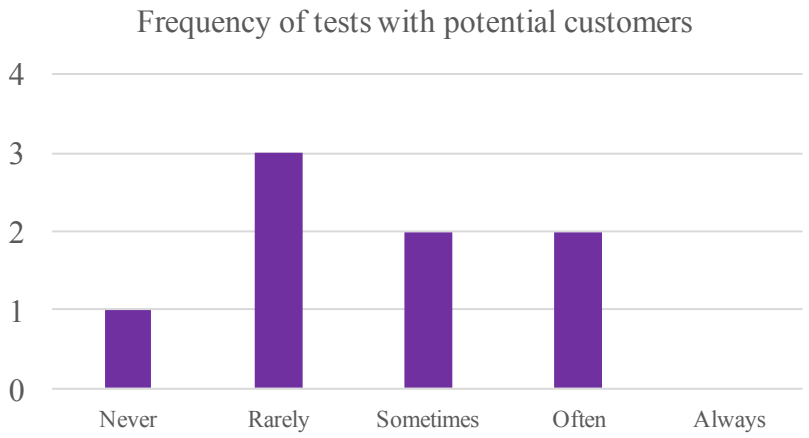

Figure 4.12 - Frequency of tests with potential customers.

The third graph in the second set, illustrated in Figure 4.13, evaluates how frequently the team iterates over the learnings from potential customers. From building MVP's, testing, and learning from potential customers, the company should rigorously and realistically measure its state in order to steer towards an ideal situation (Ries, 2011, p. 114). From that

perspective, respondents have varied perceptions with a few falling into the opinion that learnings are never or rarely used to revisit initial assumptions. This could again show misalignment of the communication within the team, difficulties in measuring the learnings, or even difficulties in using what was learned to redefine requirements.

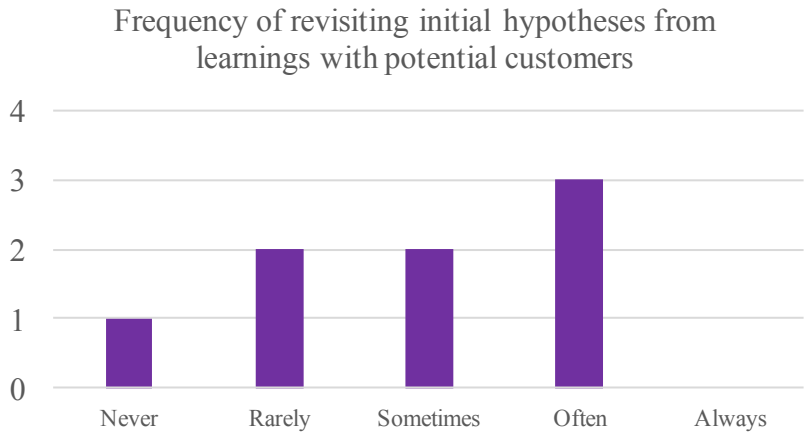

Figure 4.13 - Frequency of revisiting initial hypotheses from learnings with potential customers.

The third and last set of three questions for the second part of the survey assesses practices and challenges in the light of the approach by Lehikoinen, et al., (2016), called Casting, the proprietary approach of the case company.

The first graph in the third set, illustrated in Figure 4.14, assesses how often key stakeholders are taken into account during the process. According to Lehikoinen, et al., (2016), it is important that every stakeholder benefit from the value proposition. Respondents have the general perception that stakeholders are often or sometimes taken into account, which can be positively interpreted according to the provided scale. It is important for the team, though, to have it clear who are the stakeholders, what role they play, and how they benefit from the model.

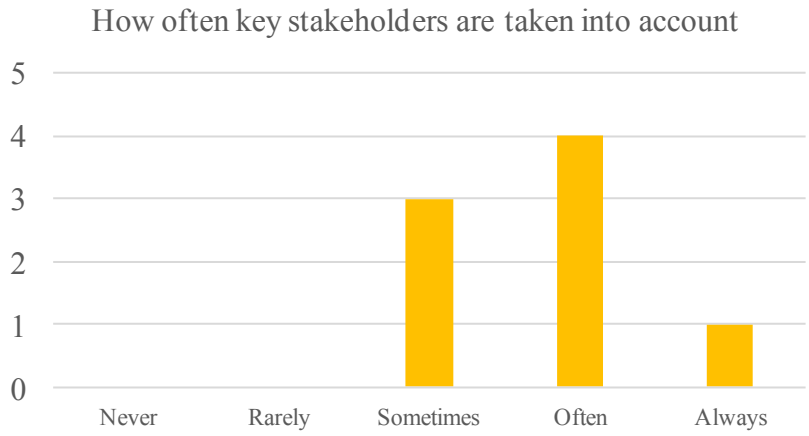

Figure 4.14 - How often key stakeholders are taken into account.

The second graph in the third set, illustrated in Figure 4.15, demonstrates how clear the value proposition is for potential customers. As for Lehikoinen, et al., (2016), a value proposition involves a deep understanding of the emotional and practical benefits that customers will get, and therefore, it is of utmost importance that the value proposition is clear to them, addressing their needs. From the point of view of the respondents the value proposition is somewhat clear, or even very clear, to potential customers. A few have also the opinion that the proposition is not so clear, but the average perception can be considered positive.

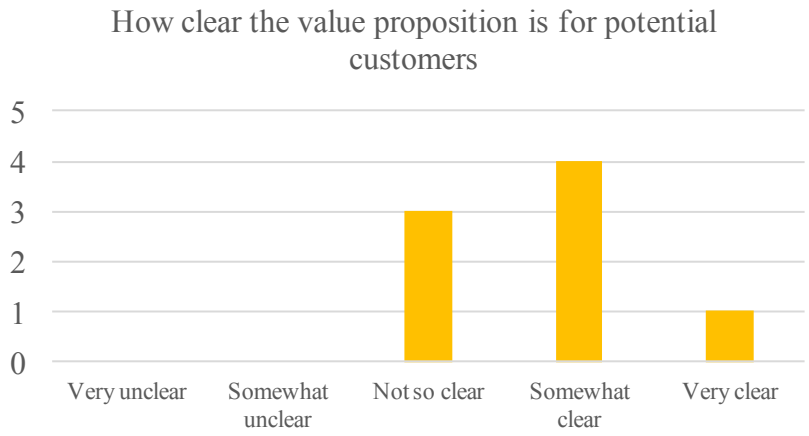

Figure 4.15 - How clear the value proposition is for potential customers.

The third graph in the third set, illustrated in Figure 4.16, shows how well the initially created personas reflect potential customers. As previously discussed in this work,

personas are a tool that facilitates communication and guides the design, closely representing customers' needs (Lehikoinen, et al., 2016). The general opinion of respondents is that the initially created personas acceptably represent potential customers. Even though this representation is important, it is even more important to flexibly adapt initial hypotheses during the project with new insights that come along the way.

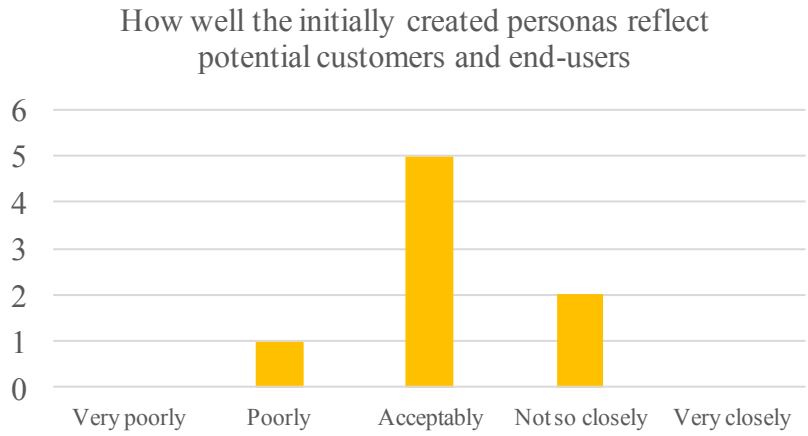

Figure 4.16 - How well the initially created personas reflect potential customers and end-users.

The findings for the last part of the survey were extracted from a set of open questions that answer from a non-technical perspective: what has been working well in the project; what has not been working well in the project; and what the team is not doing and should start doing. A final open field in the survey allowed for respondents to write any additional comments.

To the question of what the team is doing well and should keep doing, the answers reflect the use of agile methodologies early in the process, openness of the team to learn new subjects, technical maturity of the product, fast iterations over features that are not working, and one mention about good customer focus. Most of answers are somehow product-oriented, and even though they are positive, there is nothing very relevant mentioned about understanding or learning from customers.

When it comes to what the team is doing wrong and should stop doing, most of answers show that the team lacks involvement with potential customers. This is observed in comments as "our efforts have been a bit speculative with regards to customer needs", "the actual end-users are too little involved", and "there is a need for closer cooperation with

customers to clarify their needs". There is indeed a general feeling that the team is not really following a very customer-oriented approach. Another important point mentioned in the answers was the loss of resources to billable projects, meaning that team members naturally end up focusing more on the company's billable projects rather than working on the case product. Moreover, one of the respondents mentioned the negative feeling of secrecy of the case product within the organization, which could prevent relevant insights from reaching the development team.

Finally, for what the team is not doing and should start doing, some more relevant answers are "find ways to gather feedback from end-users", "the team is not testing the idea with customers", and "we have not had customers yet", clearly showing again the perception of lack of involvement of potential customers. Other suggestions are to have a better vision of what the product will be in the future, and to better sell the concept of the product internally in the company.

The last open field in the survey for additional comments revealed only that two respondents were not very familiar and not much involved with the project, even though they were part of the team.

Wrapping up the findings of this section, the team seems to have a balanced background but with too little dedication due to the demand of working on core projects for the company. Even though there is a perception of balance between product and customer orientation, the answers reflect that the involvement and validation with potential customers is weak. The initial hypotheses seem to have been often revisited and re-evaluated, but not necessarily based on what was learned from potential customers. Moreover, although there seems to be a general feeling that the value proposition is clear, a big part of the team seems unsatisfied with the extent to which potential customers were involved until that moment in time.

4.4 Business thinking orientation

The fourth and last research question aims to answer *how well the value proposition of the case product detaches from a consultancy-oriented thinking and approaches a startup-oriented thinking*. The hypothesis behind this question is that, as the case company's core

business is consultancy, there might exist challenges for the team and the structure to shift the behavior and act as a startup developing a new scalable product.

There were three main points observed during the workshop that are interesting to discuss in this section: the level of *engagement*, the *understanding* of customers, and the *characteristics* of the resulting value proposition.

Regarding the *engagement*, there were initially nine participants invited, but in the end, not all could show up due to obligations with other projects in the company, as not all are working fulltime in the case product. During the workshop, it was also observed that some participants spent some time reading or answering e-mails, doing phone calls, or even absent for a couple of minutes due to other meetings. This could show that working in the case product is in fact a secondary activity for most of them, because they have their main tasks in the company that are directly related to the current core business, which is consultancy.

When it comes to *understanding* the customers to which the case product is being developed, an important observation is that, even though potential customers were involved in the beginning of the development of the product, and again a couple of months later for reviewing the initial hypothesis (as discussed in section 4.2), most of the participants did not have a clear understanding of the customer needs, finding it difficult to think from the customer perspective in order to create the Customer Profile in the Canvas. This gap was acknowledged at the end of the workshop when most participants said that it would have been good to have a few potential customer representatives participating on the session.

Finally, the *characteristics* of the resulting value proposition brought some very interesting and innovative ideas more on the product-side of the spectrum, but some discussions were still too much focused on offering consultancy or close support for the customers.

Although the end goal of the case product is to be an independent product, the core business surrounding the whole offering creation and team structure is still a consulting firm, thus there seems to be a tendency that most team members are drawn back to what they were initially hired to do at the company, which is to work in billable clients' projects.

5 DISCUSSION AND CONCLUSIONS

This work studies the case of a growing consulting firm, referred here as *case company*, that decided to take the effort to develop a proprietary software product, referred here as *case product*, using its own resources. Nevertheless, developing a product is a common path followed by startups, whose business models differ in large from that of consulting firms. One of the motivations for the case company to follow that path is to diversify its business model and become more scalable, but developing a new product is not an easy job. Therefore, this work analyzes the processes and practices of the case company for developing the case product, contrasting them with theories that indicate the processes and practices that lead startups to launch successful products in the market.

5.1 Challenges of adopting practices for startups when scaling consulting models

The theory and case explored in this work show that traditional business models of consulting firms are hardly scalable due to their low operating leverage. Thus, the analyzed case company decided to venture into product development to diversify its model and overcome this limitation. A deeper analysis on the processes, practices, and vision of the team working to develop this case product shows that, even though it is a feasible approach, there are several challenges that have to be taken into account if one wants to have better chances to succeed.

By exploring four research questions, this work explains the reasons why consulting firms are hardly scalable, and what are the core challenges in embracing the approach of developing a product in a company whose business model exists for a purpose different than that.

The first research question looks into the relationship between scalability and growth on the case company. Thus, on section 2.1, the theoretical framework explains why pure consulting business models can grow but seldom scale. The main reason is that the operating expenses are very much tied to the consultants' salaries, who are outsourced to customers. This means that closing more deals require hiring more consultants, which causes the operating expenses to change approximately at the same rate as the turnover (Taussig, 2011). This phenomenon is then observed in practice in section 4.1, where a graph of the case company's turnover versus operating expenses is plotted based on real

financial figures, showing that the case company does have difficulties to scale even though it has grown fast and steadily. Taussig (2011) reassures this point of view stating that "if additional revenue requires relatively smaller and smaller additions to operating costs, then (…) your business scales".

With this in mind, the second research question focuses on understanding what is the process that the case company follows to develop the case product. Hence, sections 2.2 and 2.3, present respectively the Customer Development model and the Lean Startup method, two very intertwined approaches aimed for startups to create successful products. In a first moment, these two approaches are contrasted with Casting, the case company's proprietary framework for helping their customers to solve their challenges, presented in section 2.4, and described by Lehikoinen, et al., (2016). This comparison reveals that Casting is a more high-level and strategic approach, as it does not get into details on how to learn from customers as seen in Blank (2013), and how to translate insights into measurable iterative prototypes, as seen in Ries (2011). This difference should be expected as the core business of the case company is to outsource knowledge to different clients and help them solve their challenges. In contrast, the core business of a startup is to converge all of its efforts into developing and continuously delivering a scalable product or a service.

Still regarding the theoretical frameworks for startups to develop products, section 4.2 analyzes a series of electronic documents in the company related to the development of the case product. The analysis shows, on the one hand, a robust set of initial assumptions about the customers and the product, as well as a process that is closer to the traditional Product Development model rather than to the Customer Development model, meaning that the case company is supposedly far from following those practices indicated in Blank (2013). On the other hand, the development process is found out to use the practices of Scrum (Schwaber & Sutherland, 2016), an iterative approach with continuous learning that partially corroborates with the Build-Measure-Learn feedback cycle as seen in Ries (2011).

Following the same line, the third research question tries to discover the underlying practices and challenges that the development team faces for developing the case product. By surveying eight employees, all of which were said to have some level of involvement with the development of the case product, and comparing their perception with the theoretical frameworks, it is possible to notice that the case company's underlying

practices are somewhat distant from the Customer Development model by Blank (2013) and Lean Startup method by Ries (2011). When it comes to the Casting framework, the answers reveal a better fit than that of the previous models. However, the most interesting conclusions taken from the survey come along with the open questions at the end, which reveals a strong perception that potential customers are not properly involved in the process, and that other *more important* projects in the company tend to absorb the team members, reducing workforce from the development team. In contrast, both Blank (2013) and Ries (2011) show how important is to have a deep understanding of end-users, as well as a full commitment with the development.

As the last step to dig into the product development practices, the fourth research question evaluates how much the value proposition of the case product detaches from a consultancy-oriented thinking, in the vision of the development team. This analysis is done with the findings of a workshop, using the framework of the Value Proposition Canvas (Osterwalder, et al., 2014), and with the participation of six employees involved with the case product development. Based on observations on the ideas, discussion, and behavior of the participants, the general perception is that the team has difficulties to detach itself from a consultancy model. Also, a clear challenge is the lack of enough understanding about the potential customers by the team, which was mentioned several times during the event.

In overall, diversifying a consultancy business model by venturing into product development in order to become more scalable is a genuine approach, as observed in the financial figures of a real consulting firm. Still, consultancies' processes and practices are very different from those of the companies that live and breathe product development: the startups. The literature shows that, from many failures, common processes and practices arouse to help startups to launch successful products in the market. By observing the process and practices of the case company, it was possible to detect that the team developing the case product faces clear challenges that can be tackled by learning with the presented theory. Yet, one has to bear in mind that adopting different processes and practices also means a change of mindset, culture, and business model, which is a whole set of challenges that are everything, but trivial.

5.2 Practical implications

The first direct and more obvious implication concerns the strengths and weaknesses pointed out throughout the research related to the development practices of the case product, as well as its challenges. Also, for this particular case, the results of the workshop served for the case company to build a sales deck that was later tested with potential customers by the sales team.

For a consulting firm to develop its own product in a more systematic way, it is necessary to adopt different practices from those used in the everyday work of the company's core projects. Consulting firms know well how to orient their clients to solve their challenges and develop their products and services, but doing so for itself is a very different business.

One of the biggest mapped challenges is the internal competition of resources. Employees tend to be drawn by the regular structure and invariably prioritize those projects that deliver prompt value for the company. Ries (2011, p. 253) suggests that internal teams that have to act like a startup need support from the senior management to create a structure that allows successful innovation. This structure needs to provide three important attributes: secure and scarce resources, independent authority, and a personal stake in the outcome.

Within this structure, resources should be secure for the organization to not cannibalize itself, but scarce because the excess budget can also be harmful. Moreover, independent authority for the team should mean less handoffs and approvals, and full-time commitment. Finally, a personal stake in the outcome could come as stock options, equity ownership, bonuses, or even proper personal credit (Ries, 2011, pp. 254, 255).

Therefore, one suggestion is that, consulting firms that want to develop a new product or service should try to create a protected structure that allows independency, celerity, and full involvement of the development team.

Blank (2013, pp. v-vi) compares the journey of new companies and new products with the Hero's Journey. Heroes' stories have a similar outline, starting with a calling to a quest, with an unclear path, and an end that is out of sight. In a similar way, startups begin with a vision and have at first no roadmap to follow, but they often (and wrongly) believe that no

model could fit to what they are trying to achieve. Thus, diving into practices used by successful startups is the first step to not wander lost in a dark path.

As a last remark, it is important to mention that there is nothing wrong with consultancy firms and their business models. Companies like them have the whole possibility of innovating within their models and reach a steep steady-state growth, but when it comes to scaling, the limitation can be evident.

5.3 Evaluation of the study

This work is an in-depth study of a specific company and its product under development, analyzing the practical outcomes and challenges, and as in every study, it has a few limitations discussed in this section.

When it comes to the scalability, it is important to mention that the theories presented in section 2.1, and validated in section 4.1 through the case company's financial data, do not give statistical relevance to affirm that every consulting firm faces challenges to scale. It could have been interesting to use a quantitative approach to gather financial data from several consulting firms in order to evaluate whether the scalability challenge is something statistically observed.

Also, strictly speaking as defined by Taussig (2011), gross margin should be used instead of turnover. Moreover, both gross margin and operating expenses should be calculated over the COGS, which according to Investopedia ([no date]-a) considers only the expenses attributable to the production of the goods or services, meaning direct costs. But the values used in this work include also indirect costs, due to limitations of the data available in the financial report.

Concerning the two main theoretical frameworks studied in sections 2.2 and 2.3, the Customer Development model and the Lean Startup method are not the only frameworks in the literature that propose approaches for startups to develop new products and services. Nonetheless these two frameworks do walk hand in hand as both authors have worked together.

Regarding the scope, this study focuses on an in-depth analysis of one product under development by one consulting firm, comparing its practices with theoretical practices adopted by successful startups. However, one limitation at this point is the lack of practical comparison. In other words, it could have been curious to apply a parallel and similar study in a successful startup and compare the results.

A single case in-depth study also lacks comparison between similar practical cases, and applying the same methodology of study in other similar consulting firms that are facing a similar challenge of developing a product could have yielded additional insights.

Similar practical cases are not limited only to other similar companies facing similar challenges, but also to the fact that the case company is developing only one product. If there were two or more products under development by the same company, the development practices could have been compared for better validation within the same organization.

Regarding the documentation analyzed around the product development, it was not so clear to define the boundaries of when the first discussions started. This missing information might provide a limited understanding of the background of the product prior to when the documentation was created.

For the survey, the limitation lies mostly on the number of participants, which in the first place, is not statistically relevant, and in the second place, not all employees that were invited actually participated. Thus, it is not possible to affirm that the results are valid for the whole team, nor that they can reflect a typical case. Also, the level of knowledge of the respondents on the theoretical frameworks was not assessed, but on purpose. Another approach would have been to present them the theoretical frameworks first, for only then surveying oriented to what they have learned.

A qualitative approach would have been interesting in the case of multiple companies or multiple products, and also in the case of surveying a big enough number of participants in order to draw statistically relevant conclusions.

Finally, the limitations concerning the workshop are related both to the partial dedication of most team members in the case product development, and to the difficulties of envisioning possibilities beyond the surrounding structure of a consulting firm.

5.4 Suggestions for further research

Without statistical relevance, this study has no intention to be a reference for generic similar cases, but rather, to serve as a starting point for those facing a similar situation. Therefore, a few suggestions for further research rely first on overcoming some of the limitations.

Other theoretical frameworks could be researched or even a more in-depth study and application of one of the frameworks could provide a more precise result with quantitative analysis over qualitative. Also, the scalability theory could be validated in a broader level by analyzing the key financial figures of several consulting firms.

Further research could also pick a batch of consulting firms that decided to venture into product development, and systematically evaluate their practices to statistically validate the findings of this study.

Whichever the future path is, it is crucial to bear in mind that both consulting and technology product business models are very different in essence, and switching between them is not an easy task. Both models are valid, have their value and importance in the economy, and also carry their own strengths and weaknesses. Which one to choose when starting a new business is a matter of intent.

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APPENDIX I - Survey questions

Demographic questions

1. What do you consider to be your primary background?

( ) Design

( ) Business

( ) Technology

2. What was your approximate average dedication to LeapDB during the past month?

( ) Less than one day per week

( ) From one day to less than two days a week

( ) From two days to less than three days a week

( ) From three days to less than four days a week

( ) From four days to fulltime

LeapDB product development practices 1/3

3. How much do you feel that the product development practices are focused on the product or on the customer?

( ) Heavily focused on the product

( ) Somewhat more focused on the product

( ) Has a balanced focus between the product and the customer

( ) Somewhat more focused on the customer

( ) Heavily focused on the customer

4. How early do you feel that potential customers and end users were involved in the LeapDB development process?

( ) Before starting the product development

( ) Right after starting the product development

( ) After a first prototype or demo of the product was ready

( ) They haven't been involved yet, but will be involved soon

( ) They haven't been involved yet, and won't be until the first release

5. How much you feel that the product under development has already been validated by real potential customers and end users?

( ) No feature nor any business requirement

( ) Only some technical features

( ) Only some business requirements

( ) Some technical features and some business requirements

( ) All technical features and business requirements

LeapDB development practices 2/3

6. How much do you feel the initial hypotheses of the product has changed since the start of the LeapDB development?

( ) Completely changed

( ) Somewhat changed

( ) Slightly changed

( ) Remains unchanged

( ) No initial hypotheses were defined

7. How often do you feel that the LeapDB product is being tested with potential customers to gather feedback?

( ) Always

( ) Often

( ) Sometimes

( ) Rarely

( ) Never

8. How often do you feel that the LeapDB team revisits the initial hypotheses based on what was learned from potential customers?

( ) Always
( ) Often
( ) Sometimes
( ) Rarely
( ) Never

LeapDB development practices 3/3

9. How often do you feel that all key stakeholders are taken into consideration during the development of LeapDB?

( ) Always
( ) Often
( ) Sometimes
( ) Rarely
( ) Never

10. How clear do you feel that the value proposition of LeapDB is from the potential customers point of view?

( ) Very clear
( ) Somewhat clear
( ) Not so clear
( ) Somewhat unclear
( ) Very unclear

11. How well do you feel that the initially created personas reflect the potential customers and end users?

( ) Very closely
( ) Not so closely
( ) Acceptably

( ) Poorly

( ) Very poorly

Open-ended questions

Related to the non-technical challenges the team has been facing along this project, answer the following questions:

12. Write at least one thing that the team is doing well and should keep doing

R: _____

13. Write at least one thing that the team is doing wrong and should stop doing

R: _____

14. Write at least one thing that the team is not doing and should start doing

R: _____

15. Other comments?

R: _____