Master's Thesis
M.Sc. in Business and Management
Stockholm School of Economics

From Seed to Success: The Role of Venture Capital on Startup Innovation

A study on the influence of venture capital on early-stage startup innovation practices

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This master thesis aims to investigate the influence of venture capital (VC) on the innovation practices of early-stage startups. The research was conducted because existing literature lacks a comprehensive understanding of the *"how"* behind the influence of VCs from a startup perspective, as current scholars assess the impact from an investor side. To achieve this, the study used the five Lean Startup Capabilities (LSC) *customer orientation, hypothesizing, experimentation, validation,* and *learning* to investigate changes in innovation practices caused by VCs and their provided funding. A total of 15 semi-structured interviews were conducted with German early-stage software startups. The identified influences were analyzed and mapped on the LSC using thematic analysis. Hereafter, the most critical influences for a change in practices were discussed, revealing varying degrees of VC influence on the five LSC.

Our findings suggest that customer orientation experienced the most substantial impact in refining customer segments and a more professionalized approach. Furthermore, VC influence indirectly led to a reformulation of hypotheses. Startups were also subject to a greater emphasis on frequent and high-quality experimentation, but in some cases, they also decreased their testing efforts after funding. Validation experienced a weak impact with a slightly higher emphasis on easier quantifiable metrics. Lastly, the startups' learning behaviors were influenced by VCs through the provision of knowledge and the possibility to pivot.

Overall, the funding itself was found to be one of the most influential drivers for change, while guidance and investor expectations also have high relevance.

Keywords: lean startup, lean startup capabilities, innovation, innovation management, venture capital

Supervisor: Anna Söderblom

Acknowledgments

First, we would like to express our gratitude to our supervisor Anna Söderblom for her constant support and valuable feedback throughout the process.

Further, we want to extend our thanks to all interviewees who participated in our study. We are grateful for their interesting and rich insights, as our thesis would not have been possible without them.

Lastly, we would like to thank our reviewers for their constructive and critical feedback.

Stockholm, May 14th 2023

Felix Kelter Jasper Ole Miessler

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List of Abbreviations

CCO	Chief Commercial Officer
CEO	Chief Executive Officer
CIO	Chief Information Officer
COO	Chief Operating Officer
CPO	Chief Product Officer
CTO	Chief Technology Officer
IPO	Initial Public Offering
KPI	Key Performance Indicator
LP	Limited Partner
LS	Lean Startup
LSC	Lean Startup Capabilities
MVP	Minimum Viable Product
UI	User Interface
UX	User Experience
VC	Venture Capital

1. Introduction

Innovation, defined as the *"application of new ideas to the products, processes or any other aspect of a firm's activities"* (Rogers, 1998, p.5), is not only seen as one of the core components for achieving long-term business success (Han et al., 1998; Hurley & Hult, 1998) but also crucial for solving global and social challenges (Ahlstrom, 2010). A company type with a particularly high potential to deliver innovation in today's business and social environment is the startup with the potential to disrupt entire industries and business practices (Blank, 2013; Christensen & Bower, 1996).

Research has shown that companies require certain financial resources to test, modify and alter different ideas to realize an innovation's full potential and eventually introduce it to the market (Dunn & Cheatham, 1993; Marcon & Ribeiro, 2021). Since young companies typically lack financial resources, raising external funding in exchange for company ownership has become popular among startups to secure additional capital, with venture capital (VC) funding being accountable for 47% of the Initial Public Offerings (IPOs) in the US between 1995 and 2019 (Lerner & Nanda, 2020). As VC investors aim for companies with great potential to become highly valuable, they concentrate primarily on disruptive and innovative business models (Hellmann & Puri, 1999; Kerr & Nanda, 2015).

1.1. Existing Literature and Research Gap

The remarkable increase in VC financing rounds, as well as the preference of VC investors for funding innovative companies, has led to interest among academic scholars to assess the impact of VC funding on startup innovation (Lerner, 2003; Lerner & Nanda, 2020; Smolarski & Kut, 2009). However, the existing literature primarily concentrates on quantitatively measuring the effect of VC funding on startup innovative performance, such as the number of patents and citations of these patents (Nanda & Rhodes-Kropf, 2013). This focus neglects the qualitative exploration of underlying mechanisms and reasons for a change in managerial actions toward innovation, which ultimately influence innovative output and quantitative performance (Hellmann & Puri, 2002a).

Within the sparse qualitative literature, Peneder (2010) classifies three functions to distinguish between startup activities and approaches where VCs guide funding allocation (selection function) versus non-financial related advice (value-adding function), next to describing the general characteristics of VC funding (financing function). However, the existing literature predominantly approaches the influence from a VC perspective. Therefore, scholars fail to take the startup perspective first to understand how young ventures initially approach innovation before investigating the VC influence. As a result, existing literature falls short of presenting a comprehensive overview of all relevant innovation practices influenced by VCs, including interdependencies and relationships between different activities.

While the existing research is limited in the scope of application by taking the VC perspective first (Kerr & Nanda, 2015; Lerner, 2003; Nanda & Rhodes-Kropf, 2013) the scholars also disagree on the level of impact VC funding has on specific management practices toward innovation. Some authors claim a

strong contribution to innovation practices, as VCs help startups allocate funding more effectively to steer innovation (Peneder, 2010) and provide non-financial guidance to maximize innovative potential (Bygrave & Timmons, 1992). Other scholars argue that investor expectations for return on investment, excessive influence, and different risk approaches from VCs negatively affect a startup's innovation practices (Manigart et al., 2002; Popov & Roosenboom, 2012). Consequently, the current literature lacks a thorough analysis of which differences in innovation approaches after receiving funding can be associated with VC investors and their provided capital.

1.2. Research Purpose

This thesis aims to close the research gap by answering *how venture capital affects early-stage startups in their innovation practices.* The Lean Startup (LS) method by Ries (2011), a widely accepted innovation management framework, will serve as the basis for categorizing different management practices toward innovation. With its focus on continuous learning through the development of minimum viable products (MVPs) that are put to the test with real potential customers, the LS method has become increasingly popular in both academic theory and business practice (Blank, 2013; Harms & Schwery, 2019), and will function as a best practice on how to approach innovation as a startup.

To study whether, and if yes, how, startups perceive a change in innovation practices after receiving VC funding, we are interviewing founders and product managers working in German early-stage startups. We are focusing on young ventures which have raised Seed, described as the stage where the startup receives the first official external capital (Hochberg et al., 2007), or the subsequent Series A funding, where the company raises money mainly to grow and scale operations (Stuck & Weingarten, 2005). Examining startups that have raised funding in 2022 will ensure high relevance and topicality but also enables gaining a more in-depth understanding as innovation is typically most relevant within these funding stages, where product-market fit usually has not yet been found (Santisteban & Mauricio, 2017). Additionally, we limit our study to the most dominant sector in the German startup ecosystem, the software industry (Kollmann et al., 2022), where LS has its roots (Ries, 2011).

After conducting the interviews, the generated insights will be mapped on the LS framework to evaluate the influence of investors on certain parts of innovation practices in a structured and organized form. By choosing this new approach compared to existing qualitative research, we aim to provide a more holistic, process-oriented perspective on the role of VCs instead of either investigating the quantitative effect of VC funding on innovation or focusing on separate, distinct parts of management practices towards innovation. Furthermore, this research is needed to evaluate the *"how"* behind a potential change in managerial behavior from a more practical standpoint while also adding to the limited qualitative research on the influence of VCs on innovation practices.

2. Theory

The second chapter starts by illustrating the role of innovation in the startup ecosystem and which innovation management frameworks are often used by young ventures, with the LS method discussed in more detail (2.1.). Thereafter, this chapter describes the general purpose and common practices within VC (2.2.). Lastly, the agency theory will be presented to explain the relationship between investors and startups from a theoretical standpoint before describing the main influencing functions VCs take on startups from a practical perspective (2.3.).

2.1. Innovation at Startups

Scholars agree that innovation is crucial to a firm's wealth creation and long-term business success (Han et al., 1998; Hurley & Hult, 1998). Innovation can occur in many ways, from more outcome-oriented areas, such as product or business model innovation, to organizational and cultural perspectives (Kahn, 2018). Consequently, multiple definitions of innovation exist (Taylor, 2017). For this thesis, innovation is defined as the *"application of new ideas to the products, processes or any other aspect of a firm's activities"* (Rogers, 1998, p. 5).

To understand how VC influences management practices regarding innovation a sound theoretical understanding of common innovation practices in startups is necessary to understand how VC influences management practices regarding innovation. Many researchers claim that new ventures should not follow the way of traditional business planning, which recommends that companies start with a business plan that convinces investors, then build a team, the product, and lastly, focus on marketing and sales (Blank, 2013). When used by new ventures, a noteworthy issue of the traditional method is focusing too much on the business plan. Blank (2013) argues that the uncertainty associated with a new company makes it impossible to create a five-year plan based on a business model that has not yet proven itself. Several different innovation frameworks, most focusing on software companies, evolved over the past years. Among others are Customer Development (Blank, 2003), Agile Development (Shore & Warden, 2008), and Lean Startup (Ries, 2011). All frameworks are centered around customer needs and continuous product modification based on customer feedback. Mowery and Rosenberg (1979) argue that constant modification based on users' feedback can be a crucial source for successful innovation.

For this thesis, we chose the LS method as a guideline to structure and evaluate the insights from the interviews. It has gained significant attention among academic scholars and startups and includes a broader range of processes than other innovation frameworks (Blank, 2013; Harms & Schwery, 2019).

2.1.1. Lean Startup

The LS method was introduced by Eric Ries (2011) in his bestselling book *"Lean Startup: How Constant Innovation Creates Radically Successful Businesses."* Today, the method is used worldwide (Harms & Schwery, 2019), and business schools teach it to their students (Blank, 2013). The framework aims to

increase the success rate of young companies by offering a systematic approach to finding product-market fit through the testing of different hypotheses (Ries, 2011) and valuing iterative experimentation over *"big design up front"* (Blank, 2013, p. 66). Ries (2011) recommends that new ventures test their most critical assumptions about their business resource-efficiently. Learnings from these tests should inform the entrepreneur whether they can continue with their initial plan or need to make adaptations. Ghezzi (2019) found early validation for the success of the LS approach and recommends new businesses only to write business plans once lean techniques were used to identify product-market fit.

2.1.2. Roots

Despite the LS framework's attention, it is not an entirely new method. Hypothesis-driven entrepreneurship has been practiced for decades (Eisenmann et al., 2013), and many of the central aspects come from existing theories such as Lean Manufacturing (Krafcik, 1988; Womack & Jones, 1997), Customer Development (Blank, 2003), Agile Development (Shore & Warden, 2008), and Business Model Canvas (Osterwalder & Pigneur, 2010). In line with Eisenmann et al. (2013), Contigiani and Levinthal (2019) argue that experiments using a minimum viable product and pivoting are the two most significant contributions of the LS framework complementing already existing theories.

Trying to shed more light on the antecedents of LS, Bortolini et al. (2018) found that LS heavily builds on the Learning School of Strategy and the Lean Philosophy of Management. An essential contributor to the latter is John Krafcik (1988), who introduced the Lean Manufacturing method, which focuses on production that minimizes waste and cycle time while maximizing value for the customer. Having a clear understanding of customer values allows one to eliminate any activities that do not add value for the customer and thus are considered waste (Womack & Jones, 1997). Applying the LS method, a similar focus on customer value should ensure that companies are only involved in relevant activities. Contigiani and Levinthal (2019) also found links between LS and other theories. They discovered that the 'exploration-exploitation' tradeoff described in the organizational learning theory shows similarities to the iterative LS approach.

2.1.3. Applying Lean Startup

Based on the LS model, Harms and Schwery (2019) developed a set of five Lean Startup Capabilities (LSC) to operationalize the LS framework and make it more differentiable. For the context of this thesis, the LSC will be used to investigate any changes after securing funding and highlight changes in the specific capabilities and their activities. Additionally, looking at these practices from a capability and activity perspective instead of a process perspective allows an isolated examination and avoids covariances. The following section will explain the LS methodology in more detail.

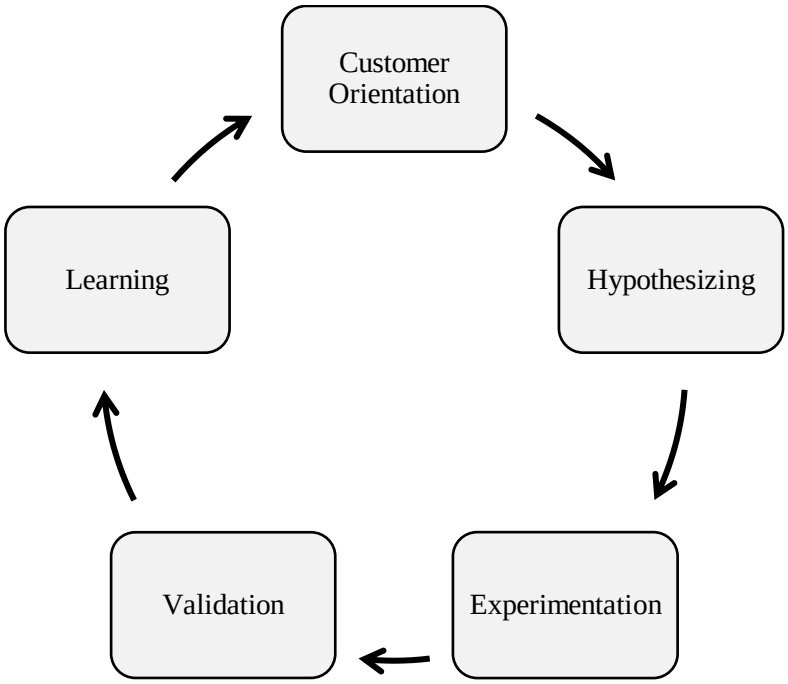

Figure 1: *Five Lean Startup Capabilities*
Adopted from Harms & Schwery (2019)

The first capability, *customer orientation*, describes the importance of focusing on customer needs. Understanding the customer's preferences can help the company focus on the right solutions. Therefore, the authors suggest that entrepreneurs should constantly generate customer insights that answer critical business questions when using LS (Harms & Schwery, 2019).

The second capability, *hypothesizing* describes the goal to formulate falsifiable hypotheses about the startup's environment that can be accepted or rejected through tests. Hypothesizing makes implicit assumptions explicit and defines what the startup should test to generate more information (Eisenmann et al., 2013; Harms & Schwery, 2019). Furthermore, Maurya (2012) recommends developing an exhaustive set of hypotheses and keeping track of the learnings made.

Experimentation, the third capability, describes testing the before-defined hypotheses. These tests should be carried out continuously to decrease uncertainty step by step (Harms & Schwery, 2019), with a series of MVPs being the recommended setup to perform experiments (Ries, 2011). MVPs offer deep insights as customers can adequately interact with these first products (Eisenmann et al., 2013). The definition of an MVP differs in the literature. While Blank (2013) argues that it must allow potential customers to interact with it, Maurya (n.d.) argues that it should also test the customers' willingness to pay and charge them. However, in both cases, the MVP is limited in functionality and capability. Eisenmann et al. (2013) describe two different limitations: An MVP can either be constrained in its functionality or lack the operational capabilities in the background required to scale it.

The fourth capability, *validation*, describes the data collected through the experiments. Using quantifiable metrics helps to reduce the risk of making wrong decisions (Harms & Schwery, 2019). As

for every scientific research, awareness of false positives and negatives is essential. Furthermore, the cognitive biases of the entrepreneurs can influence the interpretation of the result. However, having measurable results from the experiments can help reduce the risk of such cognitive biases and make decision-making more objective (Eisenmann et al., 2013).

Learning, the last capability, reflects the ability of an entrepreneur to use the generated information and change the current direction based on these insights (Harms & Schwery, 2019). When following the LS approach, entrepreneurs decide based on the learnings whether to persevere, continue with the current plan, pivot, stick to the vision but change the strategy, or perish and discontinue the venture (Eisenmann et al., 2013).

2.2. Venture Capital

Due to the high uncertainty of starting new ventures, which usually do not yet have revenues, VC firms and their investments in high-risk companies can be a valuable financing option for startups. Moreover, these investors specialize in investing in such firms and provide expertise in building a successful company next to the money they invest (Wang & Zhou, 2004). Da Rin et al. (2011) thus define VC as a *"professional asset management activity that invests funds raised from institutional investors, or wealthy individuals, into promising new ventures with high growth potential"* (p. 3).

2.2.1. Relevance of Venture Capital

In how they work today, VCs have their roots in 1946 when Georges Doriot started investing in young companies and shaped the industry up until today (Lerner & Nanda, 2020). A new regulation allowing pension funds to invest in VC caused a significant growth push in the industry in the early 1980s. Today, VCs only invest in about 0.5% of all new ventures in the US but financed 47% of the companies that went public between 1995 and 2019 (Lerner & Nanda, 2020). Additionally, global funding levels reached $209.4 billion in 2022, significantly more than in previous years (Grabow, 2023). In particular, for startups where innovation is at the center, VC funding is often the most preferred financing option (Bergemann & Hege, 1998).

2.2.2. Venture Capital Process

During the VC investment process, institutions and individuals invest in a VC fund where they become Limited Partners (LPs). The VC itself acts as the General Partner (GP). Over ten years, the typical lifetime of a fund, the GP is responsible for raising funds from LPs to invest in companies and ultimately exiting the investment to return the money to the LPs (Da Rin et al., 2011). GPs earn a fixed management fee and, in case of successful fund performance, a share of the returns called *"carry"* as their compensation (Da Rin et al., 2011).

Tyebjee and Bruno (1984) describe the investment activity of a VC as a five-step process.

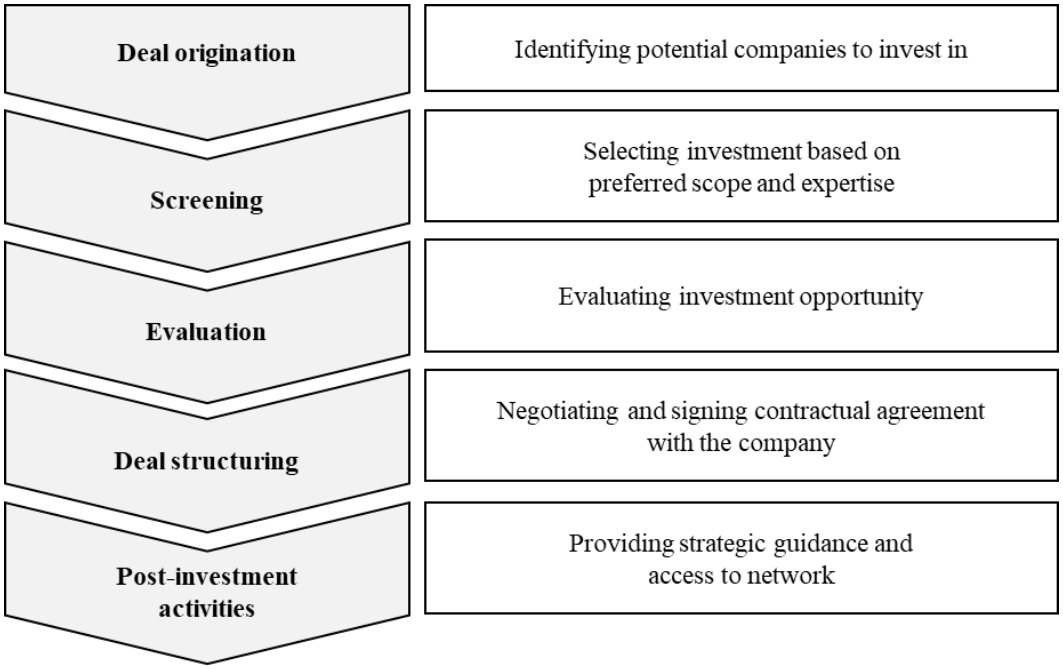

Figure 2: *Venture Capital Investment Activities*
Adapted from Tyebjee & Bruno (1984)

In the first step, the *deal origination*, the VC tries to find young companies as potential deals. Next, the potential deals are *screened* to find the ones that suit the expertise or scope of the VC. In the third step, the VC *evaluates* the investment opportunity based on different criteria. Gompers et al. (2020) found that the management and founder team is the most important criteria, followed by business model, product, and market. Step four, *deal structuring*, is about finding acceptable agreements regarding financials, control rights, and protection mechanisms with the entrepreneur. Here, VCs are especially keen on getting board control and pro-rata rights, the right to invest in future rounds (Gompers et al., 2020). Lastly, the VC is involved in *post-investment activities*, where the investors provide strategic guidance, introduce the startup to new investors, and connect to customers (Gompers et al., 2020). These value-adding services also contribute to the company's professionalization (Hellmann & Puri, 2002b). Ultimately, the post-investment activities are highly relevant for this thesis, as they describe the influence VC firms take on a startup's business activities, which can also impact innovation practices. The influence of VCs on their portfolio companies will be further outlined below, both from a theoretical and practical standpoint, before going into more detail in the literature review.

2.3. Venture Capital and Startup Dynamic

To better understand the dynamic between VC and startups, the agency theory offers a widely accepted approach highlighting the characteristics of the relationship (Arthurs & Busenitz, 2003). Additionally, assessing the underlying drivers for the impact VC investors take on their portfolio companies, the three influencing functions of a VC, according to Peneder (2010), will be introduced.

2.3.1. Agency Theory

One challenge in the VC-startup dynamic is that asymmetric information, where the entrepreneur has better access to information about the company than the investor, can lead to conflicts of interest. Therefore, especially during the *evaluation, deal structuring,* and *post-investment activities*, many of the VCs' activities aim to minimize the risk of potential conflicts of interest. To explain this dynamic with academic literature, most scholars have used the agency theory (Arthurs & Busenitz, 2003).

The agency theory focuses on the relationship of an agent that performs activities on behalf of a principal, which can cause a principal-agent conflict. This dynamic can often be found between the owner (principal) and managers (agents) in businesses (Jensen & Meckling, 1976). The authors argue that if both parties are keen to maximize their utility, the agent's interests and actions are often not aligned with the principal's interests. To ensure the agent acts in the principal's interest, the principal should incorporate incentives for the agent and monitor the management activities. As this comes with additional effort, agency costs arise (Jensen & Meckling, 1976).

Companies entirely owned by the manager do not have agency costs. In this case, maximizing personal utilization depends on the manager's preferences, which could also mean employing less disciplined people, doing business with friends instead of the ideal partner, and spending money on expensive office equipment, all activities that would not maximize the utility of an outside investor. However, when an investor buys a minor share in a company, diverging interests and agency costs arise (Jensen & Meckling, 1976).

In the case of VCs, the investors are usually the limited partners, making the venture capitalists an intermediary between both parties that tries to minimize the agency costs arising from the principal-agent conflict. In the VC-entrepreneur relationship, the agency costs problem does not exist when both parties have congruent goals and the entrepreneur is keen to maximize shareholder value (Arthurs & Busenitz, 2003). However, this is typically not the case. As soon as an investor, here a VC, invests and becomes a shareholder, the issue with agency costs occurs. Even though the entrepreneur might have a share in the company and, therefore, should also have the incentive to increase shareholder value, there can still be actions that increase the entrepreneur's utility to a greater extent than maximizing shareholder value, such as collaborating with a friend who is not the ideal partner (Jensen & Meckling, 1976).

Moreover, two more potential conflicts exist in the VC-entrepreneur relationship. First, entrepreneurs can decide to pursue projects with a negative return to realize a high personal return, for example, by gaining a reputation through a research project. Second, they can decide to continue a negative project or startup just because they get satisfaction from their role as an entrepreneur (Gompers, 1995). In all these cases, the goals are incongruent, and the relationship dynamics can be described with the agency theory (Arthurs & Busenitz, 2003).

VCs use three mechanisms to minimize agency costs: *staged investing*, *compensation schemes* for management, and *active influence* (Sahlman, 1990).

Staged Investing

Dividing the investment into different stages allows the VC to stay in control, as they monitor the company's progress between each investment round and keep the possibility to discontinue the cooperation and not invest in later rounds. The power of not investing at later stages, often considered as a warning signal to other potential outside investors, allows the VC to exercise its power against the startup's management, thereby keeping them on a *tight leash* and minimizing the risk of moral hazards (Gompers, 1995; Wang & Zhou, 2004). To mitigate agency costs, the mechanism of staged financing is considered the strongest, as it, compared to upfront investments, limits potential financial losses and strongly controls the management and entrepreneur (Sahlman, 1990).

Compensation Schemes

The entrepreneur's salary is often less than it would be at another company. However, the entrepreneur keeps stocks and could benefit from creating shareholder value, which aligns the interests of both parties to a certain extent. Similarly, such compensation packages also exist for startup employees to get them incentivized the same way (Sahlman, 1990).

Active Influence

Purely relying on agreements and contracts made up-front does not entirely eliminate potential conflicts of interest. Therefore, VCs are typically active in the startup and are usually board members or involved in recruiting, strategic, and financial decisions (Sahlman, 1990). Gompers et al. (2020) found that 60% of the VCs have at least one weekly interaction with each of their portfolio companies. The most important activities they support their companies with are strategic guidance (for 87% of the portfolio companies), connecting to new investors (72%), connecting to customers (69%), operational guidance (65%), and hiring board members and employees (58% and 46%).

2.3.2. Influencing Venture Capital Functions

Although active influence already describes certain activities where investors influence the startup, a more practice-oriented model is needed to assess VC's impact fully. Peneder (2010) classifies three main mechanisms VC investors exert on their portfolio companies concerning innovation: *financing function*, *selection function*, and *value-adding function*. The financing function covers the general purpose of VC as a financial lever when startups have no access to traditional sources of capital. Once funded, the selection function describes the support by the VC to allocate the financial resources most efficiently and profitably to facilitate innovative performance. The VCs often provide guidelines on the ideal managerial and financial setup for the startups to target innovation in a more structured and economical way (Peneder, 2010). Other scholars support this argument, as Hochberg et al. (2007) state, that investors usually consult their portfolio companies regarding the ideal use of their financial resources. Lastly, the value-adding function represents VCs' non-financial influence on startups, for example, in providing management guidelines and access to informal networks (Peneder, 2010).

The dynamic between the different models is illustrated in *Figure 3*. When investing in a startup, the VC influences the startup's approach toward innovation through at least one of the three functions. While the startup might benefit from the influence, the investor tries to limit the potential principal-agent conflict and thus mitigate agency costs (Jensen & Meckling, 1976).

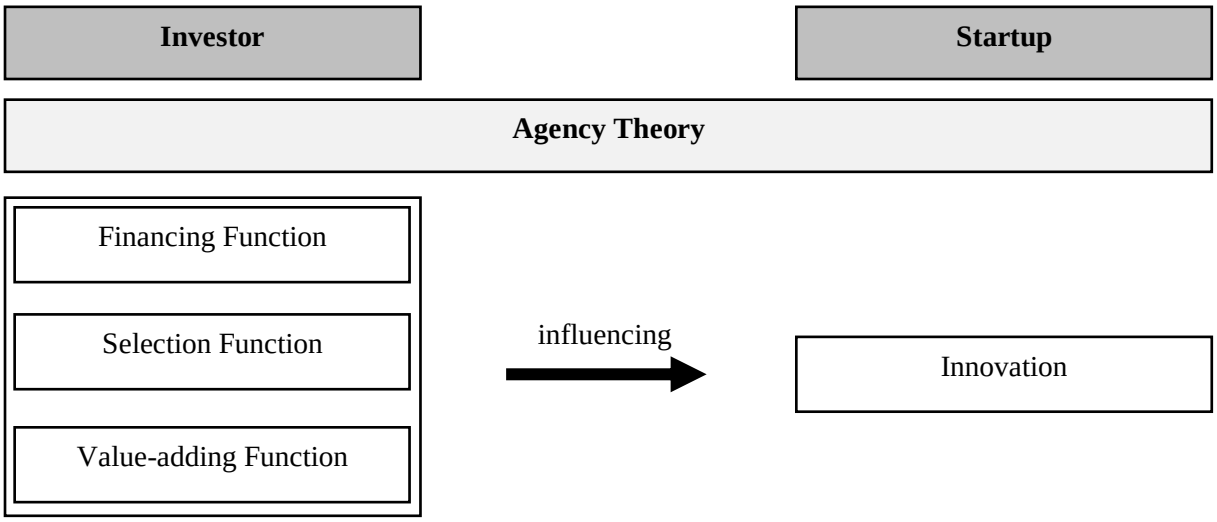

Figure 3: *Dynamic between Venture Capital and the Startup*

3. Literature Review

After presenting the existing frameworks and theories, we conducted a literature review on how VC funding impacts startup innovation practices to provide an overview of the current research state. Since current scholars fail to provide a holistic summary of influencing factors, we have clustered and categorized our findings from existing literature before allocating them to either the selection or value-adding function (3.1.). After that, the identified research gap will be highlighted and discussed (3.2.).

3.1. Existing Literature

As mentioned above, we have grouped our findings from existing scholars into different subcategories before assigning them to the respective VC function by Peneder (2010). Within the selection function, we found that VC funding influenced a startup's approach and behavior toward market research, talent acquisition, experimentation and testing, risk management, and trading off between creativity and efficiency. Additionally, we observed that VC investors impacted the startup's innovation practices within the value-adding function through provided guidance and access to networks.

Since this thesis focuses on the impact of VC on innovation, the selection and value-adding function are of primary interest as they describe how the funding and VCs' guidance influences innovation. The financing function, highlighting the characteristics of VC funding and comparing it to other sources of capital, will be less critical since this research focuses solely on VC-backed startups and does not aim to compare different financing options. Therefore, the financing function has been disregarded in the following sections.

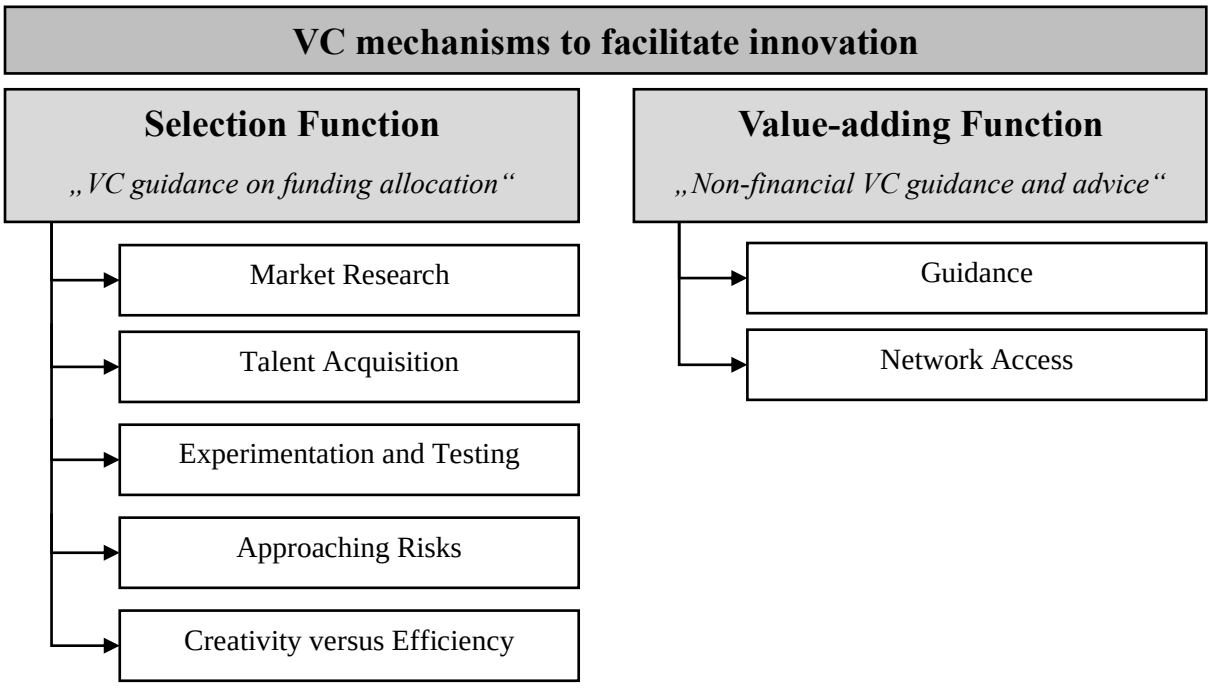

Figure 4: *Venture Capital Functions on Startup Innovation*

3.1.1. Selection Function

The selection function, described as VC firms' involvement in allocating financial resources more efficiently, can influence startup innovativeness in prioritizing specific initiatives and ideas or focusing more on certain activities (Peneder, 2010). The influence of VC varies from spending capital on market research and acquiring talents to how startups test and adapt their products or approach risks.

Market Research

In uncertain environments, more extensive market research is needed to better understand new customer groups or markets (Eng & Quaia, 2009). VCs help the startup gather more detailed insights and analyze data more target-oriented by guiding to allocate the money most effectively or to investigate specific customer groups (Peneder, 2010). This support can help startups to identify new business opportunities, tailor their product or service more toward the customer's needs, and make more informed decisions regarding the go-to-market strategy (Ferrary & Granovetter, 2009; Pinch & Sunley, 2009).

Furthermore, VC funding enables longer-term investments in research activities, extending the firm's knowledge base and, consequently, innovative thinking. As a result, the company does not have to focus too much on short-term financial gains and quick product commercialization (Hellmann & Puri, 2002a; Pinch & Sunley, 2009). Additionally, enhancing a data-driven decision-making process with VC funding aligns well with innovative management practices, as the product or service can quickly adapt to changing market dynamics (Nelson et al., 2019).

However, VC funding can create a bias toward validating and supporting the startup's existing business model or product due to the specific expectations of investors, as they might push specific initiatives or force the startup to focus more on a particular customer segment. This can result in a distorted market feedback loop, where startups may receive biased or filtered information from customers, partners, or other stakeholders, leading to incomplete or inaccurate market research insights (Lerner & Gompers, 2006). Consequently, it can also hinder the startup's ability to make informed decisions based on a proper market understanding (Lerner, 2003). According to Perez-Alaniz et al. (2022), some early-stage startups even view spending on research and development after receiving funding more as an antidote to offset lousy performance instead of taking it as a growth opportunity.

Talent Acquisition

Higher financial resources can also be used to attract better talent, namely more experienced employees, which contribute to higher innovative output with their skills and expertise. Support for the ideal allocation of funding in terms of hiring, for example, in offering competitive compensation packages, stock options, and other incentives, can attract and retain talents and drive innovation.

Nevertheless, while attracting better talent can be highly beneficial, having responsibilities distributed among many individuals can lead to shirking within the firm. The usage of creative resources, especially towards innovation, tends to decrease when having a joint resourcing process with many people involved (Mosakowski, 1998).

Experimentation and Testing

Moreover, VCs can guide startups on how resources can be used to support experimentation and testing efforts. This can include funding for prototyping, product testing, user feedback, and other forms of experimentation that can help a startup refine its products, services, or business model. Furthermore, VCs' expertise can enable startups to conduct more effective experiments, interpret the results holistically, and make data-driven decisions to eventually find product-market fit (Nelson et al., 2019). Moreover, VC funding can confirm a startup's business model, products, or services, enhancing credibility toward potential customers, partners, and stakeholders. This increased credibility can create new opportunities for startups to conduct experiments, gather feedback, and obtain market insights. Consequently, customers and partners may be more willing to engage with a startup that has secured VC funding (Jeong et al., 2020).

However, large resource endowments often create routines and patterns, making it more challenging to deviate from these patterns to stay innovative (Mosakowski, 2002).. As a result, it becomes challenging to find the ideal balance between implementing VCs' recommendations and following their guidance on testing while still performing explorative and unbiased experiments (Weber & Weber, 2007).

Lastly, contrary to the finding that VC funding can act as a safety net enabling a more long-term vision, pressure from the investors to focus on metrics can also lead to a focus on short-term outcomes. Consequently, only optimizing toward specific key performance indicators (KPIs) may not fully capture the complexity and uncertainty of experimentation and testing. This focus can result in startups prioritizing efforts aligned with the established metrics or KPIs rather than taking a more open and exploratory approach to experimentation (Yordanova, 2018).

Approaching Risks

On the one hand, some authors view high financial resources as a core factor facilitating innovative thinking since firms can be more risk-taking (Cohen & Levinthal, 1990). In this case, higher financial resources work as a safety net, allowing firms to make mistakes without fearing immediate business failure (Hechavarría et al., 2015).

This is particularly true for more radical innovation, which usually requires higher financial resources to minimize risks and push for explorative research activities. Knowing that a pivot does not cause immediate business failure when taking on more ambitious projects helps startups to boost innovative behavior and engage in riskier activities (Trabelsi & Siyahhan, 2021). Moreover, since investors conduct thorough due diligence before investing in a startup, including the viability and scalability of the business mode (Gompers et al., 2020), by securing VC funding, startups receive validation of their approach towards innovation, reducing the risk associated with market demand and scalability (Ruhnka & Young, 1991).

On the other hand, Mosakowski (2002) argues that receiving funding is not only associated with advantages and can even negatively impact the firm's innovativeness since firms tend to act more risk-averse when having high financial resources. This approach highlights the agency problems between

VCs and startups, as it can result in a misalignment of risk preferences with the investors, who usually have a higher appetite for taking risks (Manigart et al., 2002). Additionally, VC-backed startups may be subject to increased scrutiny from their investors, who closely monitor their progress and financial performance. This increased scrutiny can lead to a more cautious risk-taking approach to avoid potential negative consequences, such as losing investor confidence or facing repercussions for perceived failures (Peneder, 2010).

Creativity versus Efficiency

The expectations from investors to earn a return on investment and the limited funding runway lead to a stronger focus on productivity to use the provided capital most efficiently (Da Rin et al., 2011). VCs' guidance on allocating funding can facilitate an informed decision-making process, avoid common pitfalls and accelerate a startup's learning curve toward becoming more productive. This financial advice is essential when providing funding since an inadequate focus on spending can lead to a lack of focus on the core business.

While exploring new opportunities can result in the discovery of new innovative products or services, spending an excessive amount of resources on projects outside the core business model can also negatively affect a startup's ability to innovate and grow in terms of following too many ideas at the same time (Bicen & Johnson, 2015). Therefore, Hellmann and Puri (1999, 2002a) state that investor expectations and the corresponding guidance positively impact startup innovation and can help firms assess their innovation more from an economic utility standpoint.

Nevertheless, (Hellmann & Puri, 2002a) also argue for a potential tradeoff between creativity and long-term innovation when focusing too much on profitability. The necessity for VC firms to realize profits from their investment adds a time constraint to innovative projects, which can result in an exit of the investment before the potential is fully realized and can limit the firm's innovativeness. Consequently, startups can tend to focus more on quick wins generating revenue in the short-term rather than aiming for sustainable growth. Popov and Roosenboom (2012) support this argument, stating that forcing startups to operate more professionally and profit-oriented lowers creative and innovative output.

Other scholars even suggest that VC firms mainly invest in already innovative startups instead of the VCs' input being one of the main drivers for innovation (Caselli et al., 2009; Da Rin et al., 2011). Engel and Keilbach (2007) state that the difference in innovative output after the investment compared to non-VC-backed is insignificant. In contrast, the difference is notably higher for these firms before receiving funding. Therefore, the authors attribute the higher level of innovation of VC-backed firms to the VC selection process instead of the funding itself, which mainly accounts for higher growth rates and a more extensive customer base.

3.1.2. Value-adding Function

The value-adding function of VCs, described as the contribution on a management and business model level by the VC firm, also affects the innovativeness of startups. Next to supplying a startup with financial resources, VCs can offer mentoring and guidance to refine the innovation approach or provide the firm access to its network of relevant stakeholders (Peneder, 2010).

Guidance

VCs can provide valuable expertise and experience for the startup to navigate challenges and make informed decisions. This guidance can range from advising on strategic decisions, like prioritizing different initiatives or assessing the competitive landscape, to providing more hands-on support regarding go-to-market approaches or leadership and management guidance (Schefczyk & Gerpott, 2001). Additionally, VCs can also provide startups with best practices to approach innovation. For example, investors tend to nudge the startup towards building absorptive capacities to discover, incorporate and exploit new knowledge, which results in more innovative products and services (Cohen & Levinthal, 1989, 1990).

However, some scholars state that the excessive guidance of investors can negatively impact innovation. Too much active influence on strategic decisions can facilitate the agency problem between VCs and startups instead of mitigating it. When startups loose decision-making autonomy, it can limit their ability to pursue innovative ideas or take risks, as the VC's priorities determine the long-term innovation goals (Schefczyk & Gerpott, 2001).

Network Access

Next to providing mentoring and guidance, VCs often grant the startup access to their network. VC investors typically have an extensive network of contacts in the business world, including other investors, industry partners, customers, and potential acquirers. As a result, they can introduce startups to critical stakeholders, facilitate partnerships, and open doors to new business opportunities that foster innovation. This network can help startups access resources, expertise, and market channels that may otherwise be difficult to reach (Hochberg et al., 2007). In addition, the investors often bring valuable industry knowledge and market insights to their portfolio companies.

In summary, various authors report an impact of VC funding on startup innovation and corresponding management practices. For this thesis, the selection function, the VC's advice on allocating the provided capital, and the value-adding function entailing non-financial guidance from investors (Peneder, 2010) are particularly important. The findings of various other scholars regarding the influence of VC on innovation have either been attributed to the selection function, such as a change in market research, talent acquisition, testing, and approaching risks, or to the value-adding function in guidance and network access.

However, next to the disagreement in the academic literature on whether VC investors positively or negatively impact startup innovation in the areas mentioned above, little research has been conducted on assessing the investor influence on management practices towards innovation in a more holistic way, as most scholars only examine specific parts of innovative activities.

3.2. Research Gap

While the influence of VC on startups has been extensively studied in the literature, there is a research gap on the specific impact of VC on innovation management, especially in early-stage startups.
Scholars have assessed different innovation activities investors can influence, such as testing and experimentation, conducting market research, or approaching risks. However, to the best of our knowledge, no comprehensive study has illustrated the effect of VC on startup behavior using an innovation management framework. Instead, current literature primarily focuses on quantitatively measuring the innovative output in the abovementioned activities rather than questioning the *"how"* behind a shift in managerial actions towards innovation after receiving VC funding. As a result, current scholars fail to provide a holistic overview of which differences in innovation practices can be attributed to the influence of VC investors and their provided capital.

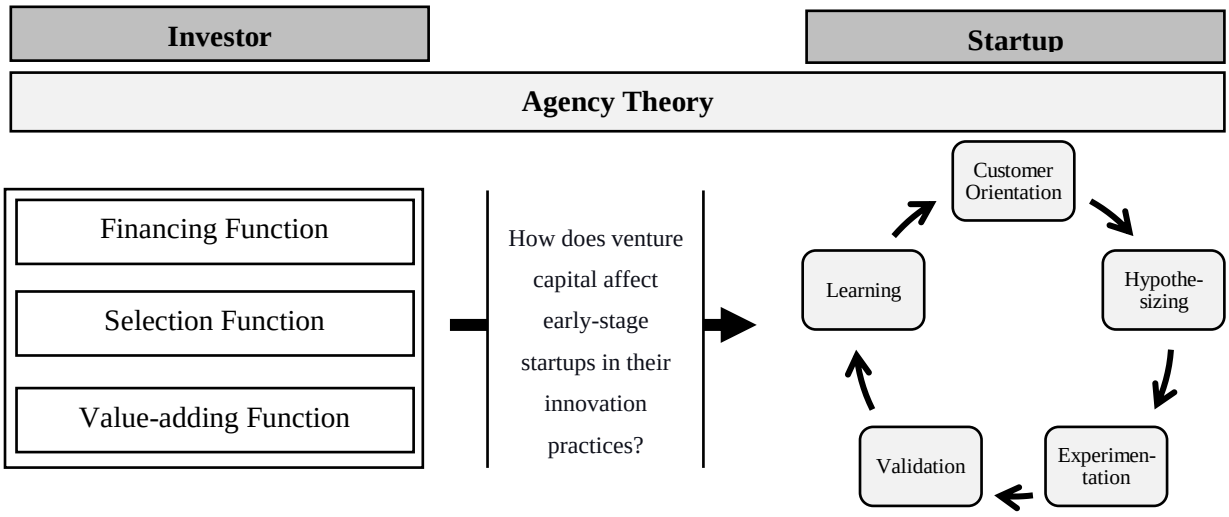

Figure 5: *Research Gap*

Thus, this thesis aims to fill the research gap by mapping the impact of VC on the LS methodology within early-stage startups. Due to its popularity in academic research and management practice, LS provides a solid foundation to assess changes in innovation practices. By choosing this methodology, the thesis intends to determine the role of VC on innovation through a close examination of how the LSC have changed. Lastly, this research aims to complement the incomplete literature by providing empirical evidence on which LSC are impacted the most by VCs and therefore need special consideration. Therefore, the following research question will address the identified gap:

RQ: "How does venture capital affect early-stage startups in their innovation practices?"

4. Methodology

This section presents the methodological decisions to address the aforementioned research gap. At first, the research design (4.1.) and method (4.2.) will be outlined. Thereafter, the case selection (4.3.) will be described as well as how the data has been collected (4.4.) and analyzed (4.5.). Lastly, the quality of the study is discussed (4.6.).

4.1. Research Design

To answer the research question on how VC impacted innovation practices within startups and to establish an understanding of how entrepreneurial behavior has changed, a qualitative research design has been chosen to match the exploratory nature of this thesis (Gephart, 2004; Gill et al., 2008). According to Strauss et al. (1992), qualitative research enables an in-depth understanding of the obtained data since different individual experiences and perceptions can be considered. Unlike quantitative research with a strong focus on measurable output, this method also provides contextualization to set the generated results in perspective, resulting in a more holistic view of the investigated topic (Gill et al., 2008). Due to the limited and niche academic literature regarding the impact of VC on innovation practices, this thesis follows a discovery-oriented approach to explore this relatively new research area (Deshpande, 1983).

Furthermore, an abductive research approach has been selected to combine the exploratory and generative nature of inductive reasoning with deductively derived concepts from academic literature. Abductive research provides a valuable methodology to generate new insights and theories by integrating empirical data with existing theories while allowing enough flexibility to further adapt the research design during the data collection, depending on the obtained results (Saunders et al., 2016). Therefore, the observed changes in management practices have been mapped on the LS methodology using a deductive approach before inductively complementing the research by adding additional influences from investors that could not be attributed to the LSC.

Within qualitative research, a cross-sectional method has been chosen, which focuses on collecting data at a single point in time from a sample of individuals or groups. This method empowers gaining knowledge of the underlying reasons and enables multiple perspectives on the research question by collecting data from different companies (Bluhm et al., 2010). This gathering of individual responses allows the identification of different patterns and trends among specific subgroups, which results in a more nuanced understanding of the topic (Spector, 2019). A common method to collect data within cross-sectional research is interviewing, which allows in-depth explorations of the research question (Gill et al., 2008).

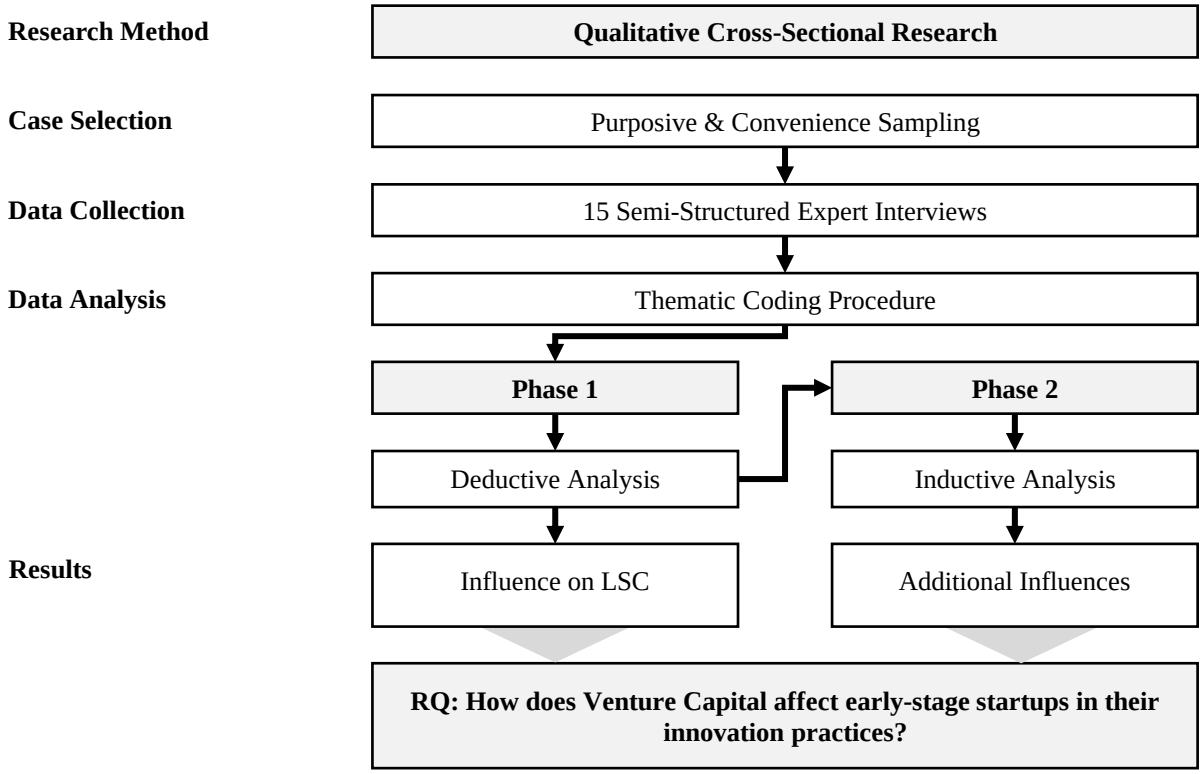

Figure 6: *Research Design*

4.2. Research Method

A semi-structured interview approach has been chosen to provide enough guidance and allow open conversations that do justice to the complexity of the topic. In addition, having the flexibility to ask open-ended questions and, if necessary, follow-up questions to obtain more detailed results while still following an interview structure allows a more comprehensive overview of the topic and drawing comparisons between participants (Magaldi & Berler, 2020).

Therefore, an interview guide has been developed to cover all relevant aspects (*Appendix A*). The questions were allocated to different categories. Within a short introduction part in the beginning, the focus has been on collecting the necessary information for clustering the results into different categories, such as industry, business model, and fundraising history, but also the individual role and responsibilities of the interviewee. After this introduction, the first phase focused on assessing the innovation practices and approaches before receiving VC. Subsequently, the questions within the second phase aimed to investigate a potential change in practices and behavioral changes toward innovation after securing funding.

By choosing this structure, the interview guide focused on gathering responses to the research question by asking for approaches toward innovation, specific concepts used, or related management practices to produce innovative output. The LS method was used as the foundation to formulate more specific questions on changes in innovation practices. Nevertheless, most questions have been phrased openly to allow follow-up questions and in-depth explanations to gain more detailed insights (Bryman, 2021).

Therefore, the interview guide functioned as a memory list of questions instead of a fixed structure. Hence, the sequence of the questions has been altered depending on the responses generated by the interviewees. This allowed the participants to share their experiences and led to a more natural conversation and authentic responses, but also helped to build trust by signaling interest in shared experiences and opinions (Patton, 2002).

The first two out of the 15 interviews were also used as a pre-test to assess the interview questions and analyzing methods (Bryman, 2021). However, this test revealed that the questionnaire was too open and lacked focus on the research question. The interviewees focused more on their general approach to innovation instead of considering the impact of VC.

Consequently, the interview guide has been reconsidered. More specific questions regarding innovative practices after fundraising have been added while still allowing the participants to share specific experiences and examples related to innovation. The five key aspects of the LS method, *customer orientation*, *hypothesizing*, *experimentation*, *validation*, and *learning* (Harms & Schwery, 2019), more strongly served as focus areas for in-depth questions. These questions have been phrased explicitly toward investigating the impact of funding on the respective LS practice, such as a change in customer groups, hypothesis testing, or learning behavior. Furthermore, the added questions aimed to study *"how"* VC impacts innovation, which allowed for gathering more nuanced and detailed responses (Patton, 2002). Additionally, the first phase of the interview regarding innovation practices before funding has been shortened to focus more on the research question.

While the first two interviews offered valuable insights into innovation in a broader sense, the subsequent 13 interviews provided more detailed insights into the research question and corresponding management practices.

4.3. Case Selection

Potential interview partners have been identified using a combination of convenience and purposive sampling methods. Convenience sampling, choosing participants based on their availability and willingness to participate (Etikan et al., 2016), has been used to select participants easily accessible within the researchers' network in the German startup industry. Purposive sampling, a non-probability sampling technique selecting participants on a specific set of characteristics (Tongco, 2007), has been used to interview the most knowledgeable and relevant individuals to answer the research question. Therefore, the interview partners have been selected based on various criteria, ranging from company characteristics to individual criteria, and are further outlined below.

All the interviewed startups have raised either Seed or Series A funding within 2022 and therefore qualified as *"early-stage startups."* Companies that have raised Pre-Seed funding have been disregarded for this study, as most of these firms are still in the early development phase and often have not even launched their product or services yet (Santisteban & Mauricio, 2017). Furthermore, these startups are more likely to raise funding from business angels or other private investors than from VCs. This can be

explained by the high level of uncertainty at such an early development stage, where business angels are more willing to take the risk for a potentially higher return compared to investing at a later stage (Gompers, 1995).

Companies that have raised Series B or later-stage funding have also been neglected since these firms usually have identified product-market fit and have gained a significant customer base. Therefore, scaling the business model and growing the number of clients seem more critical than strongly focusing on innovative activities. While staying innovative should remain an important business model component, VCs usually look more for consistent performance in growth metrics and how startups execute their ideas in the market (Hellmann & Thiele, 2015). Hence, to obtain current trends and more recent information, these later-stage companies were also not interviewed retrospectively on their previous funding rounds.

Additionally, before starting the outreach, short research was conducted on the business model, funding history, and current employees. Since different industries and their specific products require different innovation processes, this thesis focuses on software companies. The LS method, with its quick MVP testing cycles, is primarily used in software development. Therefore, focusing on this industry allows a better comparison of the effect of VC between different companies. Additionally, in Germany, software startups are the most relevant industry, accounting for 65.1% of all firms (Kollmann et al., 2022).

On an individual level, the data selection process focused on interviewing founders, senior managers, or product managers of the startup to ensure a high degree of knowledge about the business model and related management practices, which more junior roles might not fulfill. Additionally, all interviewees have been with the company before and after the last financing round to compare how funding has impacted innovation practices.

4.4. Data Collection

Due to the specific requirements mentioned above for potential interviews, convenience sampling did not provide sufficient participants. Consequently, potential interviewees outside the researcher's network have also been contacted via email and LinkedIn. This has been done using a specific outreach message, including a short personal introduction, the project's scope, and the option to book a timeslot for an interview. Contacts within the researchers' network were provided with the same information and treated the same way as the other interviewees.

From the 560 German startups which have raised either Seed or Series A within 2022, 190 startups have been identified as potential interview partners after filtering for the abovementioned criteria. 142 companies were contacted via email, 41 companies were contacted on LinkedIn to approach potential interview partners directly, while seven companies were contacted via the researcher's network.

Of the 190 contacted companies, we conducted interviews with 15 startups, with the first two interviews being used as a pre-study. After the last interview, we stopped scheduling interviews as we attained knowledge saturation. The obtained responses by the interviewed startups, regardless of the position of

the interviewee or the respective industry and business model of the company, did not differ fundamentally after the 15th interview. Therefore, we deemed 15 interviews as a sufficient sample size to answer our research question.

Table 1 presents the characteristics of the interviewed companies. Out of the 15 startups, we interviewed eight founders, six product managers, and one strategy manager. Moreover, six companies reported Series A as their most recent funding stage, while nine firms had raised Seed funding. The total funding amount of the firms reached from less than five million Euro up to almost 50 million Euro. However, most companies (11) secured between five and 20 million Euro. The companies also heavily varied in the number of full-time employees, from interviewing a firm with teams of fewer than ten people to companies with more than 100 employees. Most firms (seven) had between 20 and 50 employees at the time of the interview.

Interview	Industry	Position	Last funding round	Date of last round in 2022	Total funding (in € million)	Employees
01	IT Software	CTO	Series A	Q2	10-20	20-50
02	Renewable Energy	CCO	Series A	Q1	5-10	20-50
03	IT Security	Product Manager	Seed	Q4	5-10	10-20
04	Financial Services	COO	Seed	Q4	5-10	20-50
05	IT Software	CIO	Seed	Q2	1-5	5-10
06	Financial Services	Product Manager	Seed	Q2	10-20	20-50
07	IT Security	Strategy Manager	Seed	Q4	5-10	50-100
08	IT Software	CPO	Series A	Q1	10-20	50-100
09	Human Resources	CEO	Seed	Q1	1-5	10-20
10	Consumer Goods	CEO	Series A	Q4	20-50	100-200
11	IT Security	Head of Product	Seed	Q4	5-10	20-50
12	Renewable Energy	Product Manager	Series A	Q4	10-20	50-100
13	IT Software	CPO	Series A	Q3	20-50	20-50
14	Financial Services	Product Manager	Seed	Q3	5-10	20-50
15	Financial Services	Product Manager	Seed	Q1	10-20	50-100

Table 1: *Interviewed Companies*

Furthermore, all interviews were conducted online and lasted between 30 and 40 minutes. All interviews were conducted in English and were voice recorded. Every participant consented to be recorded during the conversation, and all interviewees were promised anonymity. Additionally, all interviews have been transcribed to analyze the obtained results and correct the limitations of memories (Berg, 2012; Bryman, 2021). During the interview, key takeaways have been noted to extract essential information and ease the transcribing and categorizing process (Bluhm et al., 2010). After each interview, findings were summarized, and learnings regarding focus topics and deep dives were incorporated into the following interview (Berg, 2012).

4.5. Data Analysis

Since the data gathered in qualitative research is usually very rich, and only specific segments will be relevant to the research question, clustering and coding the transcribed interviews is a common practice to structure the obtained data (Creswell, 2014). For this thesis, we have used the tool *Dedoose* to aid the transcription process and subsequent coding procedure. To identify themes within the data while still maintaining a high degree of flexibility and transparency, a thematic analysis has been used to analyze the collected data. Thematic analyses are widely used in qualitative research to identify and examine patterns that emerge from the data to gain a deeper understanding of the phenomenon being studied (Braun et al., 2017). The concept consists of five steps: familiarization with the data, coding the excerpts, generating themes, reviewing themes, and naming the themes (Braun & Clarke, 2006).

At first, all vocal recordings were transcribed within 48 hours after the interview to account for non-verbal behavior and social cues. Then, to increase the validity and objectivity of the obtained data, both researchers independently read and re-read the transcriptions (Wellard & McKenna, 2001). This enables a first familiarization and a thorough understanding of the data to identify ideas and concepts.

As a second step, the data were systematically coded by highlighting relevant segments, such as a word or a sentence, with a descriptive label. The coding has been done inductively, allowing patterns and themes to emerge from the data without imposing preconceived categories.

After coding all interviews, the following steps of generating, reviewing, and naming themes from the created codes have been adapted to match the research design of this thesis. Therefore, the obtained data has been analyzed in a two-step process. In the first phase, we performed a deductive analysis to determine which capabilities of the LS framework are influenced the most by VC, either directly through secured funding or investor expectations and guidance. Therefore, we have used the LSC as a framework and mapped the corresponding codes on the different categories (*Appendix B*).

However, during the mapping of generated codes, it became apparent that additional influences on innovation practices, besides the LSC, have also been affected by VC investors. Hence, we performed an inductive thematic analysis (Braun et al., 2017) as a second step to identify other innovation drivers the VCs influenced. The remaining codes have been clustered into overarching themes (*Appendix C*). This allowed a comprehensive understanding of the experiences and perspectives the participants shared during the interview and provided a more holistic overview of the influence of VC besides process-related impacts on innovation. Furthermore, the themes were constantly reviewed and refined during the coding process to include new information and allow comparisons between the interviews.

4.6. Quality

The concepts of validity and reliability are crucial in academic work, ensuring that the findings are accurate, trustworthy, and replicable (Bryman, 2021). Originating from quantitative research, reliability, and validity have also been regarded as necessary for qualitative studies (Flick, 2018).

4.6.1. Reliability

Reliability questions whether the same or at least similar results could be obtained by different researchers at another place or time using the same measurements to prove the findings' consistency and stability (Silverman, 2006). Reliability can be tough to achieve in qualitative studies, as trying to reproduce the same semi-structured interview might result in a different outcome than the previous one (Lampard & Pole, 2016).

To ensure reliability, the interview guide has been attached to this thesis, potential focus topics have been highlighted, and all interviews have been voice-recorded and transcribed. Narrowing down the interview guide after the first two interviews towards more specific questions regarding the funding impact on innovation practices also contributes to the replicability of this thesis, as interviewees were then required to focus more on the research question. Furthermore, describing why this research design, research method, and company selection process have been chosen allows future scholars to follow, understand and transparently reproduce this study (Silverman, 2006).

4.6.2. Validity

Validity refers to whether the research accurately measures what it claims to measure, specifically focusing on accuracy and truthfulness to reflect the real-world phenomena in academic work (Gibbs, 2018). Qualitative research can appear subjective to some extent, as unlike in quantitative research, a hypothesis cannot be rejected or accepted based on a quantifiable figure (Silverman, 2006). Therefore, the so-called *"researcher bias,"* the influence of the researcher's personal beliefs or values on the findings, needs to be avoided (Firestone, 1987).

Validity has been achieved by applying a clear and systematic approach during the interviews using the interview guide, but also when analyzing the results on the LS framework in the first phase. Moreover, performing an inductive thematic analysis of influencing factors outside the LS method as a second step ensured a comprehensive review and completeness. Additionally, the interviewees were asked follow-up questions to obtain a more in-depth understanding of specific experiences. Finally, the interviewer also repeated critical statements by the participants to receive confirmation and avoid misunderstandings (Lampard & Pole, 2016).

To conclude, both concepts of reliability and validity were followed to ensure accuracy, enhance credibility, support generalizability, and facilitate replication of the obtained findings (Bell et al., 2022).

5. Results

The results are presented in two parts. In the first part (5.1.), we present the findings of the deductive analysis and highlight the influence of VC on each of the five LSC. The second part (5.2.) then adds the results from the inductive thematic analysis to showcase other areas where VC influenced innovation not directly related to the LSC.

5.1. Influence on the Lean Startup Capabilities

In the first part of the result chapter, interview statements are mapped on the LSC that represent an influence by the VC. While conducting the interviews, we observed that most startups follow the principles of the LS framework either entirely or at least to some extent, even though some interviewees did not use the term. Although the relevance of LS practices has declined for some startups after securing VC funding, lean and iterative testing processes are still highly relevant for most companies.

> *"And I've seen where money really means nothing. It just means now we have enough money to get our idea out, but we're not gonna change. We're not gonna spend it frivolously. We're still gonna stay lean. We're still gonna focus." (Interviewee 06)*

> *"We still need to test a lot, and [the investors] are very much aware of it, so I would say not too big of a difference in the way we approach testing." (Interviewee 08)*

> *"I would say we still heavily build on that MVP approach, customer interviews, UI, UX testing." (Interviewee 03)*

However, while the process might have stayed the same for most companies and still seems highly relevant, certain parts of it were affected by VC. The funding, in terms of financial means, and the investor's non-financial support and guidance have influenced the five LSC. A widely observed pattern is the higher professionalization that has been either enabled through access to more money or emerged because of investors' expectations.

> *"So, what has changed is that we had the funds so we could organize our innovation initiatives a little more. But the process on its own has remained the same." (Interviewee 09)*

> *"[The biggest influence of VC] was mainly on the discovery part . . . . So definitely in terms of professionalizing and generating better data to come up with the right decisions." (Interviewee 08)*

Table 2 shows the observed influence of VC on LSC. The influence is classified into *"more"* and *"less,"* depending on whether the startup experienced a more or less intense focus on a capability. If the interviewee talked about the capability but has not mentioned any change, we tagged it as *"same."* Lastly, if the respective capability was not mentioned during the interview, it was classified as *"n/a."*

The results show the most substantial shift in focus within customer orientation, as 10 of the 15 companies reported a higher emphasis on customer needs after funding. Additionally, all 15 participants mentioned customer orientation, making it the only capability subject in each interview.

Interview	Customer Orientation	Hypothesizing	Experimentation	Validation	Learning
01	more	n/a	n/a	n/a	same
02	more	n/a	same	n/a	n/a
03	same	n/a	same	n/a	n/a
04	more	n/a	more	same	same
05	more	n/a	n/a	n/a	n/a
06	same	same	same	n/a	same
07	same	n/a	n/a	n/a	n/a
08	more	more	more	more	n/a
09	same	n/a	more	more	same
10	more	less	less	less	more
11	same	n/a	same	n/a	n/a
12	more	n/a	same	n/a	n/a
13	more	n/a	same	n/a	same
14	more	same	less	more	same
15	more	n/a	same	n/a	n/a

Table 2: *Impact of Venture Capital on Lean Startup Capabilities*

The second most commonly referred capability is experimentation, as 12 startups mentioned it while reflecting on investors' influence. While two companies stated that they had reduced their efforts in experimenting, three firms reported a stronger focus on testing and experimentation after funding. Consequently, seven firms did not notice any impact from VC.

Furthermore, seven companies mentioned the learning capability regarding VC impact, making it the third-most cited category in the interviews. However, only one interviewee reported that they had focused more on their learning capabilities after receiving funding. The other six companies did not express any change in learning caused by the VC.

Finally, we observed the lowest relevance for hypothesizing and validation since only four and five firms touched on it during the interviews. Within the two capabilities, startups have mentioned a stronger focus (one and three), less attention (one and one), or no change (two and one) after receiving VC funding.

5.1.1. Customer Orientation

The first capability focuses on customer needs and direct learning from customers and has significant relevance in the LSC for the interviewed startups. Overall, we found consent around the importance of customer insights and being in close contact.

> *"It's really about being in very close contact with the user . . . ." (Interviewee 13)*

> *"I think you have to follow the customer and the need and problem. And then really try to understand what the actual issues are and to get as much information as possible, try to talk to as many people who are involved in this or have like a similar issue . . . ." (Interviewee 12)*

However, not all startups prioritized customer orientation right from the beginning. Different startups have mentioned that products were developed based on an internal idea and did not appeal to the customers.

> *"You know, back then, when we had one or two customers, it was like some of us founders having an idea. . . . And we actually built two or three features that were nonsense. . . . We've reduced this unnecessary effort heavily through investing more in the right discovery processes." (Interviewee 08)*

The general importance of customer orientation did not decrease once the startup closed a fundraising round. Instead, most companies still consider it highly important, as ten firms mentioned a stronger emphasis on customer needs after receiving guidance from their investors.

> *"We were . . . encouraged to receive more feedback from our customers so that we could make sure that the product we are building meets their requirements." (Interviewee 05)*

> *"[Having investors] pushed us more towards listening better to the customer feedback . . . ." (Interviewee 04)*

Additionally, multiple startups mentioned that the funding allowed them to approach the customer orientation capability more professionally.

> *"After funding, we formalized not necessarily processes, but our understanding of the customers and partners." (Interviewee 15)*

Receiving additional financial resources also allowed hiring more experienced people to generate more valuable customer insights.

> *". . . this is actually what changed through funding as we got more resources financially to hire dedicated UX researchers, that very structurally identify the best possible solutions to different problems and also identifies the most critical problems that should be tackled." (Interviewee 08)*

To conclude, customer orientation was the most frequently mentioned LSC when asked about the influence of VC. While focusing on customer needs has already been essential for the interviewed startups before funding, multiple startups reported an improvement in identifying customer needs, professionalizing their practices, or implementing customer feedback.

5.1.2. Hypothesizing

When asked whether the startups develop hypotheses to determine what they want to test, only four companies stated they are using something as a hypothesis formulation.

> *"So, we do work very hypothesis-driven, and we have a collection of the hypotheses that we have, and we basically test them structurally." (Interviewee 08)*

In the case of this company, they did not experience any direct impact from the VC on the hypothesis formulation. Instead, they stated that the VC is only interested in the result but encouraged using more hypothesis testing, granted it positively contributes to faster growth rates.

> *". . . the content of the hypothesis is irrelevant for them, only the outcome is relevant for them that we grow in the fastest possible way." (Interviewee 08)*

However, most startups (11 firms) do not follow a structured hypothesis formulation. Instead, it seemed more like something implicit resulting from their uncertainties and expectations when prioritizing their goals.

> *". . . there was no hypothesis or principle that we followed as we didn't find anything on the Internet that we followed, but we tried to get as much feedback as we could, but you need to find your own way because there is no such thing as a blueprint for success." (Interviewee 05)*

Since most startups do not understand hypothesis formulation as an explicit activity, we could not identify a direct link between the influence of the VC and hypothesis formulation capability.

5.1.3. Experimentation

Compared to hypothesizing, more evidence for the impact of VC can be found within the experimentation, with 12 of the startups referring to experimentation when reflecting on investor influence. When asked about testing and experimentation in general, all companies said they engage in some form of testing.

> *"So I think that's natural for an early-stage startup to test different directions." (Interviewee 11)*

Regarding the impact of VC on the importance of testing, most companies did not experience a significant change. In most cases, experimentation already had a high relevance for the company before receiving funding and was expected to stay high in the future. Consequently, for most companies, no significant effect of VC on the importance of testing could be observed, and the respondents only referred to minor changes.

> *"I think [MVPs] are gonna be super important because we have so many different product opportunities. . . . So, I think this is going to be incredibly important also post Series A." (Interviewee 09)*

> *"So, we couldn't even build further features without going with this prototyping approach." (Interviewee 03)*

However, two companies indicate that the presence of an investor decreased the importance of experimentation. In the first case, the investor also became a customer and expected the startup to develop a particular product. Therefore, based on the investor's expectations, the startup decided to skip testing their first ideas and started building the product immediately.

> *"Prototyping was mostly just the mock-ups that we don't discussed with this customer slash investor of ours." (Interviewee 14)*

Later, another product request by the investor occurred.

> *". . . there was another instance where big customer of ours wanted a specific solution." (Interviewee 14)*

Based on the learnings from the first situation where they spent too many resources on a product that, to date, did not find a single customer, the team decided to cycle back and build a very lean version first.

> *"And that definitely saved us a lot of time and a lot to the whole engineering team to focus on or keep their focus on the road map . . . ." (Interviewee 14)*

Another interviewee expects the importance of experimentation to decrease after a Series A as those investors typically come with different expectations. Series A investors typically want to see the existing product and operations scale instead of developing and experimenting with entirely new products.

> *"So, this expectation impacts that you might rule out some of the tests that you maybe would or could have done before." (Interviewee 02)*

A second effect VC has on companies' experimentation practices is mainly driven by access to more capital. The funding allowed companies to hire more people, conduct several experiments simultaneously, and invest in technological tools that improve the processes and accelerate the development of prototypes and MVPs, leading to an overall more professional experimentation approach. Asked about whether the testing has become more professional, one interviewee answered:

> *"Yes, definitely. But I think that was much more because of the people we were able to hire . . . . I think there was just people with a lot of experience coming in knowing how to actually test things . . . ." (Interviewee 10)*

Others argued that the access to capital allowed them to have more tests at the same time and approach experimentation in a more organized way, compared to the relatively unstructured approach they used before, where often only the founder(s) were testing on their own.

> *"I bootstrapped [company name], in the first 2.5 years. I didn't have a budget, so as soon as I have the opportunity to invest, I invest, and then I have to wait . . . . So, what has changed is that we had the funds so we could organize our innovation initiatives a little more." (Interviewee 09)*

Additionally, the capital has been used to afford tools to build quick prototypes that already feel like proper products.

> *"And [testing] is also something where the funding definitely comes into play because some of these tools, for example, Retool, can get quite expensive pretty quickly. . . . to just have this security that you are not gonna get into hot water definitely helps to just like a quick decision here to get it because you know that the financial burden is not gonna cripple you." (Interviewee 14)*

In summary, the vast majority of the interviewed companies did not change their approach to experimentation after receiving funding or only reported a slightly higher focus as they could spend more human resources on testing.

5.1.4. Validation

Relatively little information could be found on how VCs affected the validation capability of the LS method since only five of the 15 firms even mentioned the investors when explaining their validation processes. Three of these five stated that the presence of an investor made them focus on different, more financial-related KPIs than before funding.

> *". . . they also are keeping their eyes on specific KPIs because they're looking for, they invested in us because they believe we will be a Unicorn." (Interviewee 09)*

However, these new metrics are mainly about scalability and will therefore be addressed separately from the innovation process (see Scalability 5.2.1), as they impact more than just the validation process.

5.1.5. Learning

When we interviewed the startups about their learning capability, none of them had a significant pivot where they changed their business model entirely. Instead, most companies persevered and followed their initial plan, and as all companies were still active, none of them perished. However, multiple companies mentioned smaller iterations and pivots after receiving funding, as changing the business model in a completely different direction would have led to conflicts of interest with the investors.

> *"You cannot pivot on the high-level strategic things. So you have to pivot on smaller things. Of course, there's still some leeway, but you cannot say [to investors] that what you bought is no longer valid." (Interviewee 15)*

Therefore, our discussion focused mainly on the minor pivots. We found that none of the companies that pivoted on a smaller scale experienced negative pressure from the investors to stay with the initial plan. As most of the companies (six firms) who mentioned the investors in the context of learning did not change directions on a broader scale, we classified the impact as "same" when assessing the influence of VC.
However, one interviewee experienced the influence of the VC in a way that encouraged the company to take a different direction. This pivot was mainly driven by the investor and less through the learning from customer experiments, thus influencing the learning capability.

> *". . . we had to focus it and actually pivot a bit. The first idea we pitched was [old company name], and was selling alcohol, condoms, that kind of stuff. . . . And from the first talks [with investors], basically what became clear is . . . that we need to be a bit more focused on this premium segment." (Interviewee 10)*

However, only one company experienced such pressure. Another interviewee believes it could only happen to their company if the numbers were not aligned with the investors' expectations.

> *"And I think as long as the numbers stay positive, there also won't be any pressure obviously from investors to pivot it away from this." (Interviewee 14)*

To conclude, none of the interviewees mentioned any major pivots after receiving funding, and the great majority also did not perceive any pressure from investors to do so. Instead, the startups only pursued minor adaptations to their business model or product.

5.2. Additional Influences

As mentioned above, during the interviews, we noticed several other parts where VC influenced the startups' approach toward innovation not directly reflected in the LSC. In order to capture all activities and practices where VC investors had an impact, an inductive thematic analysis has been conducted.
The analysis revealed four additional themes where innovation had been influenced by VC, namely scalability, market segmentation, hiring, as well as network and guidance. Furthermore, within the scalability theme, we have observed three subfactors clustering the VC influence on innovation: accelerated time to market, higher growth, and stricter goal orientation. This segmentation has been made to ensure a more nuanced understanding. Furthermore, contrary to assessing the impact on LS practices, we have classified the influence of VC investors as *"impacted," "not impacted,"* and *"n/a."* This adjusted scale is necessary, as the additional influences by VCs describe activities instead of capabilities and could not be evaluated using the *"more/less/same"* categories.

Interview		**Scalability**		**Market**	**Hiring**	**Network and**
	Time to Market	Growth	Goal Orientation	**Segmentation**		**Guidance**
01	impacted	impacted	impacted	n/a	impacted	n/a
02	impacted	n/a	n/a	impacted	impacted	impacted
03	impacted	impacted	impacted	impacted	impacted	impacted
04	impacted	impacted	n/a	impacted	impacted	impacted
05	impacted	impacted	impacted	impacted	impacted	impacted
06	n/a	impacted	not impacted	not impacted	impacted	impacted
07	n/a	impacted	n/a	not impacted	impacted	impacted
08	impacted	impacted	impacted	impacted	impacted	impacted
09	not impacted	not impacted	not impacted	not impacted	impacted	not impacted
10	impacted	impacted	impacted	impacted	impacted	impacted
11	impacted	impacted	impacted	impacted	not impacted	not impacted
12	n/a	impacted	n/a	not impacted	impacted	impacted
13	not impacted	impacted	n/a	impacted	impacted	impacted
14	impacted	impacted	impacted	not impacted	impacted	impacted
15	impacted	impacted	impacted	not impacted	impacted	impacted

Table 3: *Impact of Venture Capital on Additional Influences*

Table 3 presents the impact of the additional influences from VC. Starting with scalability, except for one firm, all companies have reported an impact from VCs, at least in one of the three subfactors. Regarding the time to market, ten companies mentioned an impact from their investors. The case looks even more decisive for growth, with 14 companies noting an influence in focusing more on scaling and growth after seducing VC money. Lastly, roughly half of the startups (eight) reported an impact on working more toward specific milestones and commercializing the product.
For market segmentation, the results look slightly different. A considerable number of firms (six) stated they had not felt any impact from VCs and their provided funding in terms of customer segments. Nevertheless, the majority still felt impacted by their approach toward market segmentation (eight).

With regard to hiring, almost all of the interviewed firms highlighted the importance of VC funding to attract and hire better talents (14). The results look similar for the last additional influence, as 12 companies reported a substantial impact on their innovation approach by the provided network access and guidance from the VC.

Within the next section, we will present the obtained results for the additional influences in more detail.

5.2.1. Scalability

The first recurring theme mentioned during the interviews was a stronger focus on growth-related indicators, such as time to market, growth rate, or other financial metrics indicating the potential to scale operations.

Time to Market

We found a strong relationship between VC funding and a shorter time to market, with ten companies stating an impact from VC investors. In contrast, two firms have not felt any effect from VCs, and three companies have not mentioned a change in time to market after funding. In addition, multiple companies mentioned that funding enabled faster product development, as developing and testing the product otherwise would have required significantly more time. This additional time would have eventually delayed the innovation's commercialization and limited the market potential.

> *"The [financial] resources enabled us to even kick start the whole developer process and build the platform within three months, whereas otherwise, it would have taken us a long time to finalize the product and then especially to beat the other competition to the market. . . . So it was crucial to have that funding in the beginning." (Interviewee 03)*

Additionally, various startups highlighted the stricter target setting and pressure to achieve certain milestones from the VCs, to focus on the most critical aspect of their product or service and shorten the time to market.

> *"You need some kind of concrete goal. You need some kind of force and time pressure because you cannot compete in the market without time pressure." (Interviewee 05)*

Nonetheless, this pressure can also result in additional stress for the startup to live up to the investor's expectations. For example, one founder stated that constant fear of not performing towards the defined target indicators led to releasing unfinished and unproven products. In particular, in fast and dynamic market environments, time to market was one of the core metrics on the investor side to evaluate business success. Therefore, in order to fulfill the desired KPIs, the interviewed startup sacrificed efficiency and product quality for a shorter time to market, which resulted in suboptimal usage of the acquired funding.

> *"We have some special cases where we would like to just wait with another topic, but they are like, no, let's get it live now. . . . That's, I think, something that is also very strong in the whole startup environment: Companies have to do things that they wouldn't do without having VC because most of the VCs are still in this nine-year cycle and are quite nervous about being fast enough." (Interviewee 10)*

Overall, the startups reported a strong influence on their approach toward time to market as the VC funding helped to shorten development cycles. However, VCs excessively accelerating the time to market has also led to inefficiencies and releasing products too early.

Growth

Similar to expediting the time to market, we observed a significant impact from VCs on increasing the growth rate of their portfolio companies. Except for two startups, all of the interviewed ventures reported an influence from VC on innovation practices in terms of scaling. In addition, various companies mentioned that they were aware of the investors' expectations of making a return on the initial investment.

> *"They're making a series of bets. Yeah, and only a few of them have to pay off. But it is like a 10 or 100 X or nothing kind of deal. They're not looking for a 10% return." (Interviewee 01)*

> *"Which means that the faster they get their money back, the better. So it's not just about the multiplication, it's also about like the time. So that means you wanna get to Series A as soon as possible, and then you wanna get the Series B as soon as possible." (Interviewee 15)*

> *"Like either you are willing to go fast and have a bit more pressure, or you just bootstrap and go slow, and the only risk is that if we are too slow, there will be competitors." (Interviewee 04)*

Because of these investor expectations, multiple companies experienced an effect on their business practices to focus stronger on scaling operations. As a result, the startups put a higher emphasis on meeting growth targets than, for example, on testing new products.

> *"I think the expectation from a Series A investor is more that you scale your existing operations and show that they are scalable, compared to you test an entirely new product line in some entirely new market where it could be like a completely new startup." (Interviewee 08)*

In the case of one company, having growth metrics as the only indicator for business success led to scaling operations less efficiently since the high costs associated did not matter to the investors at this stage.

> *"In 2021, there was only one metric. There was gross merchandise value, so GMV. I think we managed to grow 25% month on month, which was quite amazing. It was probably not the*

> *healthiest way to grow, and I think growth had basically a lot of cost. But yeah, it was only GMV." (Interviewee 10)*

This shift toward only focusing on scaling also revealed structural and organizational problems that had not been appropriately addressed before entering the growth phase. While the founders would have preferred pausing the growth targets for a specific time to improve internal processes, the VCs kept pushing for growth to gain market share, regardless of the disproportionate costs and inefficient operations. Consequently, the startup shifted to meeting the growth milestones required by the investors rather than pursuing more experimental projects with higher risks of failure or improving operations and processes.

> *"We were kind of saying, let's stop growing for three months, and let's get some tasks done first because it's just not sustainable at all. But we just can't do that [because of our investors]." (Interviewee 10)*

Additionally, some of the interviewed companies mentioned that having a favorable growth rate before receiving funding resulted in a vicious cycle after securing external capital. As a result, VC investors tried to capitalize even more on gaining additional customers and scaling operations than the company did before, even though having more financial resources did not necessarily translate into being better equipped for growing fast.

> *"Because when you have traction before, then they expect you to have even more traction when the money comes. But actually, money and the team does not always speed things up." (Interviewee 09)*

To conclude, nearly all interviewed companies noticed a stronger focus on growth after securing funding, which for some firms has led to negative effects in terms of high associated costs and less experimentation.

Goal Orientation

Next to focusing on shortening the time to market and accelerating growth, eight startups mentioned paying more attention to clearly defined metrics after securing VC funding. The remaining seven firms have either not seen any influence in their practices (five) or did not observe a stronger focus on financial KPIs (two). The interviewed companies stated that higher pressure from investors to deliver specific goals had positive and negative consequences for their startup innovation practices.

> *"It did focus the entire company. And I think that is good and bad, but knowing that you have to be able to show certain results at a certain point, then everything grinds towards that." (Interviewee 01)*

On the one hand, having more explicit guidelines and milestones supported the startups in acting more professionally and cautiously in their spending behavior, reducing unnecessary expenses on activities of little importance to firm success.

> *"This force helps you to stay on track because we didn't have to stay on track in the first two years where we lived from the funding." (Interviewee 05)*

These guidelines can be essential if the founders do not have previous founding experience or any background in business. For example, one of the interviewed startups had roots in academic research and initially struggled to set up more commercial and profit-oriented processes. In this case, VCs' pressure to deliver results in a specific time frame helped the firm approach innovation more economically.

> *"They [investors] forced you to define milestones and concrete goals that you have to follow, so you have to spend money really acquiring on lead generation, acquiring customers, more customers, getting feedback. So this was a more goal-oriented way than it was before." (Interviewee 05)*

Other startups confirmed the positive impact of focusing on stronger product commercialization. For example, one startup mentioned that without the VCs questioning their sales strategy, they would have ended up with a lower conversion rate and business success, despite high interest in their product.

> *"You cannot just sit and improve your product all the time. Sometimes you need to also commercialize it and be more bold. So in a way, they're also nudging sometimes in the right direction." (Interviewee 15)*

On the other hand, an excessive focus on achieving certain KPIs, especially in the short term, can also limit the innovation potential to incremental improvements rather than radical innovation.

> *"VC investors are great when everything works, but they force you to focus on KPIs that maybe don't really matter in the long run." (Interviewee 15)*

One company mentioned that when they secured Series A funding, the investors pushed them towards aiming for quantifiable metrics instead of ideation. This intense focus on metrics also led to neglecting other crucial areas, such as team building or establishing a healthy company culture.

> *"In the beginning, like in the Pre-Seed stage or the Seed stage, it's very much about the idea and the team. And then, as you get further on, nobody cares about your dreams anymore. It's just repeatability numbers and processes and stuff, and then Series A is somewhere in the middle." (Interviewee 01)*

A similar problem occurred on the product side, as not every product development or testing improvement has been reflected in business-related KPIs. This has led to wrong impressions from VCs on achieved progress and usage of the funding if the improvements do not immediately translate into business metrics.

> *"They [investors] are focusing on the business part, and this doesn't always reflect the real status of your company." (Interviewee 05)*

In summary, the interviewed startups which perceived a stronger focus on goal orientation after funding mentioned both contributing and hindering influences from VC investors. Clearly defined milestones and metrics helped to work more target-oriented but also resulted in less attention to the long-run vision and non-quantifiable goals.

5.2.2. Market Segmentation

Besides the impact of VCs on scalability, eight startups noticed a change in their targeted customer segments and how they approach them. One very tangible influence is that investors helped the startups access specific customer groups that otherwise would have been challenging to reach. In addition, they shared their network with the startups and thus allowed them to get access to a large group of potential customers quickly.

> *"We got a lot of connections from the VC, so potential target customers or tertiary relationships where we could just go into the industry and start our operations." Interviewee 03*

Additionally, we observed that investors guide startups toward redefining their customer segment to focus on more promising clients. While for some startups, this has meant making their target audience larger, others have narrowed down their potential segments. For example, various companies mentioned that before raising the first financing round, they had a clear vision of their preferred customer group and intensified sales efforts toward this particular segment. However, the VC investors saw the product from a more holistic standpoint and helped the companies to diversify and broaden their potential customer groups.

> *"We tried to hit a broader group of customers [after funding]. We were pretty specific at the beginning because we thought that this sector would need our product the most, but we try to do it in a broader way." (Interviewee 05)*

> *"We are trying to diversify both on distribution we launch in [country name], we also are looking to approach other segments. So initially, the idea was to approach small enterprises, but as this one takes longer or takes a while to kind of scale, we are also going to approach the medium-sized market." (Interviewee 11)*

Other companies experienced similar guidance the other way around, as the investors nudged them to break down extensive groups of potential clients into smaller segments. One founder stated that, especially in the beginning, they saw numerous use cases of their product and various customer groups to target. The VCs not only supported the startup in identifying the customer groups with the highest potential, but they also helped the company to tweak its value offering more towards customer preferences and preparing them for scaling their operations.

> *"I think we as founders were always too much tilted to opening up too many markets at once. We were like, OK, this can be applied in any industry. So, VC helped us to focus more on one thing. Scale that up, make sure this process runs basically by itself. So, you can scale them to the next market." (Interviewee 08)*

Additionally, access to VC funding impacted the revenue model for some of the interviewed startups. Financial resources have allowed them to build products holistically toward the needs of bigger customer groups instead of focusing on winning smaller accounts to generate recurring revenue streams. This resulted in a more long-term focus on the most valuable customer segments while leveraging the full potential of their innovation.

> *"Otherwise [without the VC], we probably would have chosen a different [pricing] model where we tried to acquire customers on a large scale and then just try to increasingly charge them for the service. If we didn't have the resources in the background, we would probably focus more on making smaller but more frequent revenue streams in the short term." (Interviewee 03)*

> *". . . we are looking to approach other segments. So initially, the idea was to approach small and medium enterprises, but as this one takes longer to scale, we are also gonna approach the medium-sized market. That means above 100 million in revenue just because that gives you bigger tickets." (Interviewee 11)*

Lastly, we have twice found a special case in the VC-startup relationship where the investors were also product customers. In one case, the founder reported a positive influence from the VC side, as it gave them a better overview of which parts of their product they had to improve first and which were demanded the most. Additionally, building the desired features increased trust from the investor side. Hence, the startup had to worry less about securing the next financing round and could focus more on improving its business model.

"So, we used the CLA [convertible loan agreement] to offer the largest customers to invest in us, and that was a god move because our Series A very much depends on us closing the market. And if your customers invested in you, the perspective changes. From you trying to convince them to pay more money for you, . . . to they really want you looking for new features." (Interviewee 04)

To summarize, roughly half of the interviewed firms mentioned an impact of VC on market segmentation. In case startups have experienced an influence from investors, they refined the customer segments toward more promising accounts and focused less on short-term financial gains.

5.2.3. Hiring

Another recurring influence we identified during the interviews was a stronger focus on hiring after receiving funding, as 14 out of 15 interviewed startups mentioned an influence on their hiring approach. Although the extent to which the firms have used the additional resources to grow their teams differed between the companies, a large majority of the startups rated VC funding as having a positive impact on their hiring and talent acquisition processes.

> *"If there's one thing the funding was important for us, it was giving us the opportunity to hire really amazing people. That was also really what was then ultimately driving and powering the business." (Interviewee 10)*

Furthermore, various companies stated that VC funding not only enabled them to hire more people in total numbers but also helped to attract better talent and more qualified experts. This was empowered by being able to pay higher salaries, but also due to the investor's reputation in the respective industry.

> *"I think funding provides you, at the end of the day, with a lot of trust besides the actual money. So, one is you can hire people and the second one is better people will come, and we are realizing with everything single round the quality of people we can actually approach is increasing." (Interviewee 04)*

> *"What has changed dramatically is that with the funding, we have hired the team. So now collaboration and managing this process, and communicating the goals have become very important. This was absolutely not important when I was doing it alone or just with my cofounder." (Interviewee 09)*

Additionally, due to their network and access to exclusive talent pools, investors were also helpful in supporting startups to overcome hiring problems or labor shortages. One startup mentioned that, especially at an early stage, it has been challenging to contact top-tier talent, and their VC was able to help by connecting them with industry experts.

> *"Well, one of our investors is kind of tech-driven and provided us with specialists. So they help us out if we have a staffing problem." (Interviewee 07)*

However, some companies were unsatisfied with help from investors in recruiting talent or criticized the VC's influence on hiring decisions. For example, one startup pointed out a need for more support in hiring and recruiting from investors and criticized the high costs associated with the potential help from

the VCs. In this case, the initial investment contract did not include access to the VC's talent network. Therefore, additional help with hiring came with extra costs.

> *"Frankly, when I joined, I would have expected a bit more support because I thought I was alone. I didn't have a teammate. So more support in recruiting and or like project-based support for launching the product and accelerating things." (Interviewee 11)*

Overall, we observed a considerable impact on hiring processes as VC funding enabled paying higher salaries, but the investor's network and reputation also helped to attract better talent.

5.2.4. Network and Guidance

Lastly, except for one firm, all companies mentioned the influence of investors regarding network and guidance, with the majority of the startups (12) reporting a clear impact on their innovation practices. These companies highlighted the access to the investor's network in terms of portfolio companies or industry experts, but also the guidance and expertise VCs provided based on their previous experience. The ability to share knowledge and best practices with other founders from the VC's network has been mentioned multiple times as one of the main non-financial benefits of the investment.

> *"Venture capital firms, especially if you have really top tier VC firms, you get a lot of open doors and potential to talk to people who you else couldn't talk to, which is really important." (Interview 12)*

> *“I think the one the one and only thing that really solves a lot of problems for us at the beginning was connections." (Interviewee 10)*

> *"So, when it comes to collecting VC money, what is really helpful is the portfolio companies of the VCs to exchange because there are companies two or three years down the path and already like had the challenges you're facing. . . . So, you don't have to think about sitting down for two weeks and reinventing everything yourself." (Interviewee 08)*

Next to connecting their startups with other founders and experts, the investors provided direct guidance on different business model aspects. Whether it was strategic questions or operational challenges, the interviewed startups pointed out the support and advice from their VCs which helped them to improve their value offering.

> *“I mean, we have really great investors on board that have a lot of experience, and they've been a great help throughout the journey and are always there as a sparring partner, especially in the early stage." (Interviewee 06)*

> *"It's very pull-based on the way we work together. We say, hey, we need information on this, this is our next biggest problem. How do we solve it, and can you give us some connections?" (Interviewee 08)*

In conclusion, most interviewees emphasized the network and guidance provided by investors as helpful to gain industry insights from other portfolio companies and receive managerial and strategic guidance from the VC.

6. Discussion

This chapter will discuss the obtained results and aims to answer the research question. In the first part (6.1.), we will allocate the additional influences to the LSC, as they implicitly affect specific capabilities. In 6.2., we present the major impacts of VC on the respective LSC. Furthermore, to create a comprehensive overview of potential influences, we compare each capability's results with existing literature to create a holistic overview of potential influences. If applicable, we explain the roots of the investor/startup dynamic using the agency theory.

6.1. Mapping Additional Influences on Lean Startup Capabilities

After allocating the obtained results on the LSC in Phase 1 of our study, we conducted an inductive thematic analysis. This allowed us to identify four additional influencing factors that impact a startup's innovation process but could not be mapped onto the LS method. Although the results were presented separately in two parts, 5.1 and 5.2, they are not entirely unrelated when answering the research question. Having a closer look at the four themes from Phase 2, scalability, market segmentation, hiring, and network and guidance, we identified that each could directly or indirectly influence distinct capabilities.

Table 4 shows how the additional influences impact the LSC. In the following sections, we will outline the influence of the respective capability in more detail.

	Customer Orientation	**Hypothesizing**	**Experimentation**	**Validation**	**Learning**
Scalability					
Time to Market			Quicker or less testing		Lower willingness to pivot
Growth		Hypotheses more growth-oriented			
Goal Orientation		External goals		Easier quantifiable metrics	
Market Segmentation	Focus on most promising segment	Hypotheses for new segments			
Hiring	More experienced researchers		More and better developers		
Network and Guidance	Access to new customer segments				Expertise from VC and network

Table 4: *Additional Influences mapped on Lean Startup Capabilities*

6.1.1. Scalability

Since scalability expectations appear in three different areas, we use the developed subcategories to map them on the LSC.

Time to Market

As we heard from the interviews, time to market is a relevant topic of discussion between VCs and startups. A stronger focus on time to market influences the LSC in two ways: *quicker or less testing* and a *lower willingness to pursue pivots*. First, while higher funding might improve the experimentation by allowing to build MVPs and prototypes quicker, the pressure to release products in shorter time periods might force the startup to skip certain experimentation steps. Second, having the pressure to decrease time to market might also influence the willingness to pivot based on learnings made through experimentation. Once a company tests a product or other business model-related hypotheses and feels quite confident with the result, negative feedback might not make them change direction when having a time constraint. Such pivots include that the whole experimentation cycle needs to be repeated, which can be time-consuming and thus unfavorable concerning time to market.

Overall, the willingness to pivot the initial strategy influences the learning capability, whereas the pressure to deliver impacts the experimentation phase.

Growth

A stronger focus on growth as the result of high investor expectations toward scaling also affects the innovation process. While this focus does not directly affect the practices, the shift in prioritization causes the startups to adapt their operations to meet growth targets. Although this does not necessarily mean the company is experimenting less, it might affect the scope and direction of conducted tests and thus influences the hypothesis formulation capability. Hence, *more growth-oriented hypotheses***,** for example, regarding the ideal distribution channel, are formulated and tested. Therefore, the growth pressure does not directly impact the innovation process but can influence the hypothesizing capability as the company needs to reassess the direction of testing procedures.

Goal Orientation

Similar to the influence of a more vigorous growth focus, working more toward *external goals* and KPIs also impacts the hypothesizing capability. Having external guidelines and a more precise goal setting by the VC requires a change in hypotheses formulation to make more outcome-oriented assumptions and plan the testing process in a more structured way.

Furthermore, a stronger goal orientation also affects the validation capability, as it requires more quantifiable metrics to evaluate the obtained results from the experimentation phase. Therefore, this pressure from the investor side nudges the startup to validate its practices with more quantifiable metrics.

6.1.2. Market Segmentation

We found significant influence in *targeting more promising customer segments* and *formulating new hypotheses for the new segments* after receiving funding. Not only did the VC's network often provide access to potential customers, but the experience a VC brought in also helped to define the right customer segments, whether targeting a broader or more narrow group of customers. Regarding the LSC, mainly customer orientation is indirectly influenced by this access and guidance through the VC. Redefining customer segments also means that different strategies are needed to target either new customer groups or approach existing customers in a different way. Consequently, the hypotheses tested with the old customer segment need to be revised and reformulated based on the new assumptions. Therefore, we also see an influence on the hypothesizing capability.

6.1.3. Hiring

A crucial success factor in building a company is human capital (Collins et al., 2005). Not surprisingly, the same is true for successful innovation processes (Mariz-Perez et al., 2012). During the interviews, we heard several times that the most significant changes in innovation practices were driven and enabled by the employees. VC influences access to talent in two ways. First, it provides financial means to scale a team by hiring new people and paying higher salaries. Second, a startup appears more attractive to many potential employees once funding has been secured, as it increases a startup's reputation and future financial security.

Once the startup leverages these benefits and hires new employees, it can significantly influence two capabilities. First, customer orientation can be improved when *more experienced researchers* are hired to explore customer needs. Furthermore, by *hiring more and better developers* to build MVPs, the company can improve the quality and speed of the experimentation.

6.1.4. Network and Guidance

The last additional influence is access to the VC's network and expertise. Several startups highlighted the importance of speaking to other portfolio companies or industry experts to benefit from their knowledge and learn from the investor network. The access to additional knowledge can allow startups to realize learnings without going through the whole experimentation cycle and quicker decide whether they want to persevere, pivot, or perish. Furthermore, leveraging the VC's network can make accessing new customer groups easier and thus influence the customer orientation capability. Consequently, we see a strong connection between this factor, customer orientation, and learning.

6.2. Discussing Key Influences and Underlying Drivers

After the additional influences have been mapped on the LSC, we will discuss each of the capabilities in more detail to examine the most critical driving forces behind the change and to comprehend the underlying VC-startup dynamic. *Table 5* highlights the key influences on LSC.

Customer Orientation	Hypothesizing	Experimentation	Validation	Learning
Refinement of Segments	Reformulation of Hypotheses	Increased Quality of Experiments	Easier Quantifiable Metrics	Access to Knowledge
Professionalized Customer Orientation		Increased Frequency of Experiments		Possibility to Pivot
		Less Experiments		Lower Willingness to Pivot

Table 5: *Key Influences on the Lean Startup Capabilities*

6.2.1. Customer Orientation

Already before fundraising, customer orientation had a high relevance for most of the interviewed startups. In most cases, VC increased this importance even further. This observation concurs with the findings of Ferrary and Granovetter (2009), who found that VCs support startups in understanding their customer segments to make better decisions.

Our results suggest that customer orientation is mainly influenced by support in refining customer segments and an increase in quality through better talent.

Refinement of Segments

We found three mechanisms for how VC influences the refinement of customer segments. First, they provide guidance to refine customer segments and reassess business opportunities. This guidance is mainly driven by the interests of the VC to ensure the startup addresses the most promising customer groups. It aligns the interests between VC and startup regarding customer strategy. Secondly, they provide access to their network, allowing startups to approach potential customers they would otherwise not have had access to. Finally, the funding provides a safety net that allows more long-term thinking, as the startup does not need to optimize for the most profitable segments in the short term. Hellmann and Puri (2002a) similarly observed that VC can enable a more long-term-oriented focus, which allows startups to deprioritize short-term gains with lower future potential and to concentrate more on business success at a later stage.

From an agency theory perspective, such active influence from the VC in refining the customer segments and granting access to new customer groups is highly plausible. It allows the VC to ensure the startup focuses on the most promising segments that ideally lead to the highest return and thus maximize shareholder value and consequently decrease potential agency costs. These findings concur with other scholars researching the VC-startup dynamic and who also found that connecting startups with

customers (Gompers et al., 2020) and providing a more long-term focus (Hellmann & Puri, 2002a) are typical VC influences. Furthermore, the alignment in customer strategy can reduce asymmetric information between the two parties and, thus, potential conflicts (Arthurs & Busenitz, 2003).

Professionalized Customer Orientation

Next to the refinement of the customer segments, VC impacts the professionalism of the customer orientation. The provided funding allows hiring more experienced talent and thus can increase how well the customer experiments are defined and executed. Hellmann and Puri (2002b) similarly argue that higher innovation output can be achieved with higher financial resources as they allow to attract better talent. Finally, besides the funding, VC also provides a valuable signaling effect and boosts reputation. Since only a small share of startups manages to secure VC funding, it can positively convince potential employees to start a job at the firm.

To conclude, VC highly influences customer orientation. It can encourage startups to refine their existing customer segmentation and equips them with the financial means to hire talent, making this process more professional. However, the importance was already relatively high before VC funding.

6.2.2. Hypothesizing

Few interviewees actively mentioned hypothesis formulation as the foundation for defining experiments. However, there is a subconscious underlying importance as most hypothesizing happens implicitly when considering how to reach the company's objectives. Therefore, it is not surprising that no direct VC impact has been mentioned. Nevertheless, investors have a substantial impact as they influence a startup's objectives and thus indirectly influence the hypothesis formulation.

Reformulation of Hypotheses

Investors usually have clear ideas of what they want a startup to achieve and often have expectations regarding growth-oriented metrics. This causes the startup to redirect activities, which often results in refining hypotheses and reassessing what to test. Additionally, the guidance toward new customer segments can require further experimentation with these new customer groups and thus also affect the hypotheses formulation.

The change in hypothesis formulation can be explained by using the agency theory. Especially regarding growth, startups and VCs can have different perceptions in terms of pace or relevance, leading to potential conflicts of interest. When investors provide the startup with a more goal-oriented target setting that represents their preferences, they try to ensure that both parties follow the same objectives and therefore mitigate risk conflicts of interest at a later stage (Sahlman, 1990).

Overall, the VC's influence can be considered powerful even though most companies are not associating it with a change in their hypothesis formulation. However, the goal setting of an investor has a significant subconscious influence that makes the hypothesizing capability highly affected.

6.2.3. Experimentation

Similarly to customer orientation, most companies already strongly emphasized testing before receiving VC money, making the investor influence less severe. Different from customer orientation, however, is that the relevance can change in both directions after VC funding. While some companies mentioned increased quality and frequency of their experimentations, others experienced a weaker focus on testing.

Increased Quality of Experiments

The first VC influence observed is a quality increase in the conducted experiments. Comparable to customer orientation, funding allows hiring more talented developers experienced in building MVPs and prototypes. In addition, the funding allows to invest in testing infrastructure, which quickly becomes more expensive but is crucial to build more advanced MVPs. Furthermore, Nelson et al. (2019) argue that the expertise of VCs can improve the effectiveness of experiments and strengthen the interpretation of results and decision-making.

Increased Frequency of Experiments

Next to an increase in quality, the results also indicate an increase in testing frequency. Mentioned by several interviews, it became clear that the funding allows building larger teams who can build MVPs quicker and run several experiments simultaneously. Additionally, some startups are facing investor expectations regarding a shorter time to market, which can cause them to accelerate experimentation efforts to launch their products sooner.

Less Experiments

While most of the startups who experienced an influence on experimentation mentioned an increase in frequency or quality, some interviewees also experienced reduced importance of testing, for which we could identify two reasons. First, the expectations regarding a shorter time to market, which, as we discussed, can increase the testing frequency, can also lower the frequency. In cases where the perceived pressure is very high, the time to market expectations can force a startup to skip the experimentation process and launch products without entirely conducting user testing. The second reason we observed does not concern many startups but can be highly relevant for those affected. In cases where the investor is also a customer, the investor might exercise a more decisive influence as they have more explicit expectations regarding the business model and product offering. Such influence can cause the startup to be less explorative and follow the proposed direction of the VC more strictly and not test these ideas with the outside world (Weber & Weber, 2007). However, this special relationship with the investor being a customer can also minimize the principal-agent conflict as both sides tend to be more aligned in their interests (Jensen & Meckling, 1976).

To conclude, VCs influenced the experimentation of startups, with observed changes in both directions by increasing and decreasing importance. More specifically, the VCs' funding, expectations, and guidance caused some startups to extend their experimentation frequency and improve the quality of

experiments, while others decreased their testing efforts. However, the relevance has already been high for most companies before securing funding.

6.2.4. Validation

Validation is the capability for which we found the least evidence in the interviews and literature. As the interviewees did not directly mention it, we can only see an implicit influence from VC on using easier quantifiable metrics.

Easier Quantifiable Metrics

As we already discussed for the previous capabilities, the expectations to reach clearly defined objectives that often come with VC investments have a strong subconscious influence on several capabilities, including validation. Most investors' objectives, such as growth or time to market metrics, are easily quantifiable. Thus, experiments become more straightforward to validate. Other experiments, for example, regarding product development, are often more complex to validate as they are harder to measure quantitatively, making the newly introduced metrics the easier quantifiable metrics and thus enhance the validation capability.

Consequently, investor expectations can impact the validation capability as startups shift their focus toward easier quantifiable goals. Still, we found only a weak implicit correlation.

6.2.5. Learning

In the interviewees' perceptions, the learning capability remained relatively unchanged after securing VC. Except for one startup, the interviewed companies did not actively notice any relevant influence or pressure to either persevere or pivot. This finding is not surprising as the VC already invested in the initial idea and, therefore, should be convinced by it. However, there are three relevant influences that we need to highlight.

Access to Knowledge

The access to both the expertise of the investor and the knowledge of the VC's network in the form of industry experts and other founders presents a significant influence. It allows the startup to incorporate many learnings without making the learning through experiments conducted by themselves. Many of the uncertainties a startup faces are not highly specific and are generally applicable to businesses. In such cases, talking to investors or other startups in a similar situation can facilitate relevant learning, enhance decision-making processes, or even make some of the experimentation cycles redundant.

Possibility to Pivot

For many companies, VC funding is necessary to consider pivoting in the first place. Having the funding as a safety net, as we already discussed in the customer orientation section (6.2.1.), allows startups to consider substantial pivots. Without financial security, many companies are not in a position to undertake a substantial reorientation because it would either be financially not feasible or too big of a risk. Trabelsi and Siyahhan (2021) support this claim and argue that having the certainty that a pivot does not cause business failure allows startups to pursue riskier activities.

Lower Willingness to Pivot

Most startups expressed a consistent willingness to change before and after funding, which indicates that the risk behavior did not change. This is surprising, as we found contrary views in academic research, with multiple scholars arguing for a lower willingness to pivot after receiving funding. For example, Mosakowski (2002) states that funding makes companies more risk-averse. Similarly, Peneder (2010) argues that investors are closely monitoring the performance of a startup, which can lead to a more conservative risk approach.

Both cases are subject to the agency problem because VCs tend to act more risk-taking than the startup since the investment only represents one of many. With each investment, investors aim for the highest possible return, willing to sacrifice those who ultimately fail (Manigart et al., 2002). Therefore, higher risk-aversion of the startups should not be in the investor's interest. However, only one of the interviewees confirmed changing to a more risk-taking approach driven by the investors.

To summarize, most interviewees did not experience any direct influence from the VC on their decisions to pivot or persevere. However, the funding can allow one to consider a pivot in the first place, and the VC's expertise and network can facilitate relevant learning opportunities for a startup. Additionally, while academic scholars argue that the willingness to pivot decreases with funding and investor expectations, we did not find empirical evidence to support this claim.

7. Conclusion

The purpose of this study was to deepen the understanding of the influence of VC on early-stage startup innovation practices. This research is necessary, as existing literature lacks questioning the *"how"* behind the influence of VC and fails to present a holistic overview from a startup perspective of all relevant influencing factors VCs exercise. Thus, this thesis used the LSC to present how VC affects certain parts of the innovation process of early-stage startups.

Given the exploratory nature of this thesis, an abductive research approach has been chosen to complement existing theories from academic scholars while still allowing an inductive exploration of newly found evidence outside the LS framework. For this, we conducted 15 semi-structured interviews with German early-stage software startups. Next, we analyzed and mapped the identified influences from VCs on the LSC using a thematic analysis. Finally, we derived and discussed the most critical influences and their drivers for a change in innovation practices related to VC.

We observed the most substantial influence of VC on innovation practices within the firm's customer orientation. Refining customer segments and professionalizing and sharpening customer orientation were the most impacted areas. Although compared to customer orientation, fewer companies explicitly mentioned the hypothesizing capability as highly impacted, we discovered a strong indirect influence from VC in reformulating hypotheses to test new assumptions. Within the second-most mentioned capability, experimentation, startups experienced a stronger focus on more frequent and high-quality testing but also fewer conducted experiments after VC funding. Substantially less impact has been observed for the validation capability, with a slightly higher focus on more quantifiable metric investors introduced after funding. Lastly, while most companies did not perform any significant pivots after receiving funding, VC investors still influenced the learning behavior of the startups by providing access to knowledge and the possibility to even consider a pivot. However, investor expectations can also lead to a more risk-averse approach and a lower willingness to pivot.

To conclude, we found various influences that impact the five LSC, with customer orientation and experimentation being the most influenced capabilities. While funding is one of the most influential aspects, guidance and expectations also have a substantial impact.

8. Contributions

8.1. Theoretical Contributions

This study contributes to the research on the VC-startup dynamic, as it adds to the discussion around the VC's influence on the innovativeness of early-stage startups. By combining the different streams of existing literature, which are heavily focused on specific practices or activities, this paper provides a more comprehensive overview of influencing factors on innovation than previous scholars. Therefore, it contributes to closing the previously defined research gap, as current literature lacks a holistic approach to allocate investor influence on innovation practices. Furthermore, this study complements the work of Peneder (2010) by allocating relevant innovation activities to the selection and value-adding function defined by the author. Thereby, this work offers a more detailed understanding of how startups change their approach toward innovation after receiving VC funding.
Lastly, to put the influencing activities into perspective and consider the interests of the investors, this study leverages the agency theory to shed light on the investor perspective and offers an enhanced comprehension of the underlying dynamic of specific influences.

8.2. Empirical Contributions

In addition to the theoretical contributions outlined above, this thesis provides empirical contributions to the existing literature. To the best of our knowledge, no academic paper has assessed the influence of VCs on the LS framework. Therefore, this study adds empirical evidence on how VC impacts a highly relevant innovation management concept (Harms & Schwery, 2019). Next to deductively mapping VCs' impact on the LSC, this paper extends the consideration by inductively identifying additional influences from investors, resulting in a more granular understanding of how the influences are intertwined. Ultimately, by combining both factors and eventually aggregating the findings to key influences, this study thoroughly outlines how VC affects innovation practices at early-stage startups.

8.3. Limitations

The research design chosen for this thesis revealed four limitations.

First, the limited time of this study did not allow for conducting a longitudinal study, where the startups would have been monitored and interviewed several times before and after securing VC funding. Therefore, interviewees had to be asked about past experiences, which bears the risk of recency biases in the statements, as people tend to overemphasize recent events (Nikolopoulou, 2023).

Second, the sample size, scope, and context of the interviewed startups are constrained. Although the number of interviews has been deemed sufficient as we have reached knowledge saturation, with 15 conducted interviews the significance of the obtained results is limited. Additionally, we only talked to

one employee per company, which might result in an overrepresentation of personal perceptions that do not reflect the company or team as a whole.

Furthermore, as this study only focused on software startups in Germany, results should not be seen as generally applicable to all startups. Several industries have very different innovation cycles, which makes the findings of this study not necessarily relevant to them. The results may also vary in regions with different economic circumstances and maturity levels of the VC industry. Additionally, six startups raised funding within the last quarter of 2022 and therefore struggled to describe the influence of the funding as the investors have not been strongly represented.

Thirdly, one should be aware that some of the observed influences might exist because of the company's natural progression and development. Within the scope of this study, a clear differentiation between impacts from VC and influence driven by natural progression was not feasible. However, we have good reason to believe that VC drives the majority of the observed influences, as the interviews heavily focused on assessing the impact of investors.

Lastly, using LSC as the framework for innovation concentrates the observed influence on this particular method and neglects other important innovation management concepts mentioned above. Additionally, a strong focus on LS might have caused the interviewees to be less explorative and thus could have limited the observation of additional influences. Nonetheless, due to its high relevance in academic research (Blank, 2013) and business practices (Harms & Schwery, 2019), we believe that the LS concept provides the best foundation to investigate VC influence.

8.4. Future Research

Due to the high complexity of the VC-startup relationship with regard to innovation, many promising directions for further studies exist. However, following the abovementioned limitations, we suggest two main areas for future research.

First, expanding the scope and context of this study could enrich the understanding of the observed dynamic. While the number of conducted interviews did not allow a differentiation between Seed and Series A, future research could investigate variations between the funding rounds and, thus, a potential difference in innovation behavior. Furthermore, interviewing more than one employee of the startup or extending the study to different industries and geographic locations could also broaden the knowledge and add different perspectives.

Second, a longitudinal study design could capture the influence more granularly and also study which parts of guidance and expectations are rejected by the startup and thus do not influence the innovation process. This research approach would also allow a deeper understanding of the principal-agent dynamic in startups regarding innovation practices.

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Appendices

Appendix A – Interview Guide

Introduction

- Could you please describe your role and the business model of [company name]?
- Could you elaborate on the fundraising history of [company name]?

Phase 1: Initial approach to innovation

- What does innovation mean for your company?
- Do you have a specific method or process in place when approaching innovation?

The following questions always refer to the status of the company before securing VC funding.

- How did you initially generate customer insights?
- Which customer segments did you target in the beginning?
- Did you formulate any hypotheses to define what you want to innovate?
- How did you test your idea/product/service?
- How did you validate your idea/product/service?
- Did this validation led to any changes (e.g. pivots?)

Phase 2: Impact of VC

The following questions always refer to the status of the company after securing VC funding.

- How do you currently generate customer insights?
- Do you target different customer groups now?
- Did the VC help you to find product-market fit?
- What is your current approach to formulating hypothesis and define and your assumption?
- What is your current approach to testing/prototyping the product?
- How do you currently measure/validate your ideas after funding?
- Are there parts of your business model that the VC pushed you to improve/refine?
- Do you think differently about the willingness to change/pivot now that you secured VC?

Concluding

- What is the biggest impact of VC on the innovation process?
- Did you notice any negative impact of VC?

Appendix B – Coding Example Lean Startup Capabilities

Data	Code	Lean Startup Capability
"We were . . . encouraged to receive more feedback from our customers so that we could make sure that the product we are building meets their requirements." (Interviewee 05)	Stronger focus on customer needs	Customer Orientation
"[Having investors] pushed us more towards listening better to the customer feedback . . ." (Interviewee 04)		
". . . hire dedicated UX researchers, that very structurally identifies the best possible solutions to different problems . . . ." (Interviewee 15)	More professionalized customer research	
"After funding, we formalized not necessarily processes, but our understanding of the customers and partners." (Interviewee 08)		
". . . the content of the hypothesis is irrelevant for them, only the outcome is relevant for them that we grow in the fastest possible way." (Interviewee 08)	No direct impact on hypothesis formulation	Hypothesizing
"I think [MVPs] are gonna be super important because we have so many different product opportunities. . . . So, I think this is going to be incredibly important also post Series A." (Interviewee 09)	High relevance of testing	Experimentation
"So, we couldn't even build further features without going with this prototyping approach." (Interviewee 03)		
"So, this expectation impacts that you might rule out some of the tests that you maybe would or could have done before." (Interviewee 02)	Decreased importance of testing	
"Yes, definitely. But I think that was much more because of the people we were able to hire. . . . I think there was just people with a lot of experience coming in knowing how to actually test things. . . ." (Interviewee 10)	Better quality of testing	
". . . they also are keeping their eyes on specific KPIs because they're looking for, they invested in us because they believe we will be a Unicorn." (Interviewee 09)	Higher focus on financial KPIs	Validation
"You cannot pivot on the high-level strategic things. You have to pivot on smaller things. Of course, there's still some leeway, but you cannot say [to investors] that what you bought is no longer valid." (Interviewee 15)	Only minor pivots	Learning
". . . we had to focus it and actually pivot a bit. The first idea we pitched was [old company name], and was selling alcohol, condoms, that kind of stuff. . . . And from the first talks [with investors], basically what became clear is . . . that we need to be a bit more focused on this premium segment." (Interviewee 10)		

Appendix C – Coding Example Additional Influences of VC

Data	Code	Additional Influences	
"The [financial] resources enabled us to even kick start the whole developer process and build the platform within 3 months, whereas otherwise it would have taken us a long time to finalize the product and then especially to beat the other competition to the market. . . . So it was crucial to have that funding in the beginning." (Interviewee 03)	Faster development cycles	Time to Market	
"You need some kind of concrete goal. You need some kind of force and time pressure, because you cannot compete in the market without time pressure." (Interviewee 05)			
"We have some special cases where we would like to just wait with another topic, but they are like, no, let's get it live now. . . . That's I think something that is also very strong in the whole startup environment: Companies have to do things that they wouldn't do without having VC, because most of the VCs are still in this nine-year cycle and are quite nervous about being fast enough." (Interviewee 10)	VC force faster time to market		
"They're making a series of bets. Yeah, and only a few of them have to pay off. But it is like a 10 or 100 X or nothing kind of deal. They're not looking for a 10% return." (Interviewee 01)	Strong focus on scaling	Growth	Scalability
"I think the expectation from a Series A investor is more that you scale your existing operations and show that they are scalable, compared to you test an entirely new product line in some entirely new market where it could be like a completely new startup." (Interviewee 08)			
"In 2021, there was only one metric. There was gross merchandise value, so GMV. I think we managed to grow 25% month on month, which was quite amazing. It was probably not the healthiest way to grow, and I think growth had basically a lot of cost. But yeah, it was only GMV." (Interviewee 10)	Less sustainable growth		
"We were kind of saying, let's stop growing for three months and let's get some tasks done first, because it's just not sustainable at all. But we just can't do that [because of our investors]." (Interviewee 10)			
"[Investors] forced you to define milestones and concrete goals that you have to follow so you have to spend money really acquiring on lead generation, acquiring customers, more customers, getting feedback. So this was a more goal oriented way than it was before." (Interviewee 05)	More focus on financial milestones	Goal Orientation	
"You cannot just sit and improve your product all the time. Sometimes you need to also commercialize it and be more bold. So in a way, they're also nudging sometimes in the right direction." (Interviewee 15)			
"VC investors are great when everything works, but they force you to focus on KPIs that maybe don't really matter in the long run." (Interviewee 15)	VC limits innovative potential		
"[Investors] are focusing on the business part, and this doesn't always reflect the real status of your company." (Interviewee 05)			

Data	Code	Additional influence
"We tried to hit a broader group of customers [after funding]. We were pretty specific at the beginning, because we thought that this sector would need our product the most, but we try to do it in a broader way." (Interviewee 05) "We are trying to diversify both on distribution we launch in [country name], we also are looking to approach other segments. So initially the idea was to approach small enterprises, but as this one takes longer or takes a while to kind of scale, we are also gonna approach the medium sized market." (Interviewee 11)	Target broader customer segments	
"I think we as founders were always too much tilted to opening up too many markets at once. We were like, OK, this can be applied in any industry. So, VC helped us to focus more on one thing. Scale that up, make sure this process runs basically by itself. So, you can scale them to the next market." (Interviewee 08)	Target more niche customer segments	Market Segmentation
".If we didn't have the resources in the background, we would probably focus more on making smaller, but more frequent revenue streams in the short term." (Interviewee 03) ". . . we are looking to approach other segments. So initially the idea was to approach small and medium enterprises, but as this one takes longer to scale, we are also gonna approach the medium sized market." (Interviewee 11)	More long-term revenue focus	
"If there's one thing the funding was important for us, it was giving us the opportunity to hire really amazing people. That was also really what was then ultimately driving and powering the business." (Interviewee 10) ". . . better people will come and we are realizing with everything single round the quality of people we can actually approach is increasing." (Interviewee 04)	New hires drive innovation	Hiring
"Venture capital firms, especially if you have really top tier VC firms, you get a lot of open doors and potential to talk to people who you else couldn't talk to, which is really important." (Interview 12) "I think the one the one and only thing that really solves a lot of problems for us at the beginning was connections." (Interviewee 10)	Network enables faster learning	Network and Guidance
"I mean we have really great investors on board that have a lot of experience and they've been a great help throughout the journey and are always there as a sparring partner, especially in the early stage." (Interviewee 06) "It's very pull based on the way we work together. We say, hey, we need information on this, this is our next biggest problem. How do we solve it and can you give us some connections?" (Interviewee 08)	VC expertise improves value offering	