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# Collaborative Product Development in partnership formation within Start-up Ventures

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# Abstract

This master's thesis presents a qualitative research study on the partnership formation phase of Collaborative Product Development within start-up ventures. The research aims to identify the key factors that influence product development, with a specific focus on start-ups ventures. Existing literature and theories on Collaborative Product Development have been reviewed, highlighting the benefits, challenges, and motivations behind this strategic approach.

The research adopts a qualitative research approach to gain relevant insights. A sample of 12 start-ups, primarily from the Skåne region, an innovation hub with strategic geographical significance, has been carefully selected. The sample encompasses start-up companies of various sizes, years of establishment, revenues, and operating sectors, providing a diverse range of perspectives on the research topic.

Semi-structured interviews have been conducted with the selected start-ups, following a structured and time-efficient approach. The data analysis method employed is inductive thematic analysis, allowing the data to reveal insights without any preconceived notions or subjectivity from the author.

The findings of the study highlight several recurring themes identified through the interviews. These themes have been categorized into two main groups: main themes and noteworthy themes. The main themes, namely strategy, collaborative processes, and ecosystem and social network, have emerged consistently across all interviews. Additionally, noteworthy themes such as legal, communication, and financial aspects have been identified as meaningful by the author, despite recurring only in some interviews.

The identified themes, both main and noteworthy, are considered key factors influencing Collaborative Product Development and strategic partnerships within the start-up sector. The study provides valuable insights into understanding the dynamics and critical elements of successful partnerships and product development within start-ups.

Keywords: Strategic partnerships, collaborative product development, start-ups, qualitative research, thematic analysis.

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# Introduction

In the fast-paced and dynamic landscape of startup ecosystems, collaborative product development has emerged as essential strategies for companies to overcome challenges and thrive. This thesis aims to investigate the opportunities, challenges, and factors involved in these alliances, uncovering the key success factors and practices to navigate the complex landscape of collaboration, with a specific focus on the partnership formation phase within startup sector.

While relevant literature and theories exist on Collaborative Product Development, the author of this thesis aims at adding relevant information in the specific sector of collaborative product development in the context of startup companies.

Therefore, the research question outlined in this master's thesis is as follows:

**RQ1** → *What are the key factors that influence effective collaborations in product development within a startup?*

Collaborative product development is a product development strategy that involves two or more brands/companies partnering to create a new product or service (Büyüközkan, 2012). Firms face many challenges in establishing their brand (Ojasalo, Nätti, & Olkkonen, 2008). Strong competition, low brand awareness, and limited resources create difficulties to differentiate themselves in the market (Littler, 1995). Companies of all sizes and from different sectors use collaborative product development and co-branding to create brand equity and enter new markets and product categories (Davis, 2004). Research has shown that this strategy can lead to a range of benefits, including increased brand awareness, improved brand image, and enhanced customer loyalty (Davis, 2004).

The study wants to explore the benefits and challenges of strategic alliances for startups, as well as to identify the critical success factors and best practices for managing such partnerships in a startup ecosystem and will draw on existing research and conduct qualitative research to provide insights into the key factors that are seen as influential within the collaborative development process in startups.

The author conducted literature research and identified a theoretical framework for the following thesis project. The attributed title for the thesis project is **Collaborative Product Development in partnership formation phase within Startup Ventures.**

Starting with the elaboration of the term Collaborative Product Development, which the author sees as the foundation of the manuscript, interlinked concepts that shape Collaborative Product Development will also be analyzed such as the start-up ecosystem, open innovation, and social network theories. These concepts are seen as potential factors that might influence partnerships and collaborative product development in startups.

To provide a comprehensive overview of the situation, the author of this thesis conducted 12 interviews with startups and entrepreneurs primarily from the Skåne region. The Skåne region in southern Sweden is renowned as one of the best innovation hubs in the country, with numerous startup companies emerging each year from renowned incubators, acceleration programs, and Lund University. Therefore, the author made a deliberate decision to focus on startup companies connected to this region. The selection of startups was carried out meticulously to ensure a well-rounded and diverse sample that encompasses variations in size, year of establishment, revenue, and operating sector. This approach aims to provide a broader understanding of the research topic. The author was able to establish contacts with entrepreneurs and relevant employees within the startups through the networking resources available at Lund University.

The author conducted semi-structured interviews that outlined questions aimed at collecting relevant data. To ensure structure, conciseness, and clarity, the questions were categorized into four main groups: (1) General information, focusing on details about the interviewed startup; (2) Collaboration processes and identification, involving specific inquiries about the pursued collaborations; (3) Learning, where startups shared their insights and experiences gained through these collaborations; and finally, (4) The use of the startup ecosystem and social network.

It should be noted that the collected information from the interviews varied to some extent due to the fact that the entrepreneurs guided the interviews based on their individual interests.

The methodology employed for the analysis of the collected data was inductive thematic analysis. This approach aims to identify recurring patterns and themes that emerge from the interviews. The thematic analysis involved several steps. To identify the themes, a coding process of the data was conducted. The author chose an InVivo approach, which allows the data to reveal the emergence of codes based on the interviewees' own words and descriptions. After coding the data, the codes were then organized into themes based on their similarities.

A total of 14 themes emerged from the thematic analysis of the collected data. These themes were categorized into two groups: main themes and noteworthy themes.

The main themes were identified as recurring throughout all of the conducted interviews, while the noteworthy themes emerged in some of the interviews.

The three main recurring patterns found in the data were as follows: "**Strategy**": This theme encompassed all the actions and strategies adopted by the startups to gain a competitive advantage. "**Collaborative processes**": This theme focused on the various actions and steps related to collaboration, such as design, prototyping, sampling, and manufacturing. "**Ecosystem and social network**": This theme captured information related to social network theories and the impact of the startup ecosystem.

In addition, the author identifies several noteworthy patterns that are considered relevant to the research topic. These patterns include communication, legal, and financial aspects. The author will provide detailed explanations for why these factors are seen as significant in the context of Collaborative Product Development and strategic partnerships within startup ventures.

## **Thesis Outline**

The following thesis has been structured in a clear and concise manner, aiming to facilitate the reader's comprehension and navigation through the manuscript. The current chapter serves as an introduction, providing an overview of the thesis. It is followed by a literature review on collaborative product development, which is complemented by an analysis of interlinked concepts such as open innovation, social network theories, and startup ecosystems that influence product development. The methodology chapter is then presented, offering an explanation and justification of the methods employed for data design, collection, and analysis. Subsequently, the findings are presented and thoroughly examined in the discussion section. Finally, the conclusion chapter summarizes the entirety of the thesis work and presents the final conclusions drawn from the research.

## **Contribution**

The research was centered on the topic of Collaborative Product Development specifically in the partnership formation phase, which have been extensively covered in the existing literature and relevant theories. However, the author of this thesis has identified a significant gap in the analysis of these strategies and concepts specifically within the startup ventures. Consequently, the primary contribution of this thesis is to offer a comprehensive examination of collaborative product development and strategic partnerships, with a focus on outlining the key factors that influence these strategies within the unique context of startup ventures.

## Key Concepts

In the following sections key concepts recurring across the thesis manuscript will be outlined. This serves to enhance the comprehension and overall understanding of the research paper.

**Collaborative product development**→ it can be described as a series of sequential steps that encompass the conceptualization and creation of a specific product or service. (Gills,2022)

**Startup**→ startup could be defined as a temporary organization that is looking for an appropriate and efficient scalable and profitable business model to apply to the startup (Blank, 2012)

**Business Ecosystem** → defined as a network of companies that interact and collaborate with each other to produce new products, services, and systems that might be valuable for society and or customers (Tripathi, Oliveira, & Suominen, 2022).

**Entrepreneurial Ecosystem** → entrepreneurial ecosystem is defined as the environment in which different independent actors interact together to create a new business, taking advantage of the fact that they are operating in the same geographical area (Cohen, 2006).

**Entrepreneur** → The Entrepreneur is defined as the first and most important element within the ecosystem describing it as someone who wants to start a new business.

**Open Innovation** → “The use of purposive inflows and outflows of knowledge to accelerate internal innovation, and to expand the markets for external use of innovation, respectively” (Chesbrough, 2006).

**Incubators** → Incubators can be defined as companies that assist start-up ventures with services like mentorship, management training, and office spaces. Incubators can be sponsored by different entities such as technology incubators (Kaufmann, 2008).

**Strategies** → encompasses all the practices and actions undertaken by startups to gain a competitive advantage.



# Literature Review

As mentioned in the introduction this thesis aims to investigate the role and key factors of Collaborative Product Development within partnership formation phase in the context of startup ecosystems. In addition, dynamics that shape startup ecosystems like open innovation and social networks are analyzed. In order to have more clarity, the author decided to divide the theoretical framework into sub-paragraphs that introduce and analyze important definitions that provide a clear baseline for the understanding of the overall literature review.

## Collaborative Product Development

Starting with the definition of product development, it can be described as a series of sequential steps that encompass the conceptualization and creation of a specific product or service (Gills, 2022). In contemporary terminology, product development is also referred to as new product management (Gills, 2022). From a business standpoint, the primary objective of product development is to enhance the company's market share by effectively meeting the wants and needs of customers (Gills, 2022).

By acquiring sufficient market information, it tries to minimize risks while trying to reduce costs and time to market at the same time (Harmancıoğlu, 2007). The complex nature and uncertain environment of the product development process leads organizations to collaborate in order to improve quality and benefit from complementary knowledge and competence while sharing risks, reducing costs and time-to-market (Littler et al.1995 Noori and Lee, 2004 Harmancıoğlu et al. 2007).

Research suggests that 38% of formal agreements between companies worldwide are motivated by joint product development (Noori, 2004). Even more when the eventual production and marketing of the products are included (Noori, 2004). Product development collaborations can be defined as two or more partners joining complementary resources and experiences with the aim to design or develop a new or improved product (Davis, 2004). Those collaborations include networks of companies, virtual organizations, customer-supplier collaboration, extended manufacturing enterprises, dynamic networks, strategic alliances, and joint ventures (Davis 2004).

Collaboration is a complex process to manage and demands effort and meticulous execution to improve the efficiency and effectiveness of product development. Competitive advantage develops due to the ability to become involved and to create value in innovation and improvement processes within inter-company collaborations (Chapman, 2005). In competitive markets organizations face

increasing demand for customized solutions, high-quality products, short time-to-market, and lower costs (Owens, 2001). Product development is of crucial importance for organizations but becoming ever more complex, often involving many different areas of skill and expertise as markets and technologies converge, product life cycles shorten and technological disruptions accelerate (Littler, 1995).

New and improved products, processes, and services must be developed continuously to meet the challenges businesses face and to ensure survival and continued prosperity (Ranky, 1994). Constant innovation puts continual pressure on product development teams to widen the product portfolio, explore opportunities, and manage risks from the initial development to the eventual launch (Owens, 2001). Therefore, it is necessary to speed up the product development process to maintain market share and gain a competitive advantage.

Innovation concerns engineers, product designers, manufacturers, customers, and the technological infrastructure. In order to obtain the best performance from the process, efficient and effective management of the product development process is vital, but many useful tools and techniques are not utilized effectively (Ali, 2000). Only 14% of total product development efforts turn out to be successful and consequently, organizations search for ways to decrease product development times while improving quality and reducing costs (Owens, 2001). Inter-firm collaborations emerge as a viable option to exchange expertise, increase market share and reduce research and development costs (Büyüközkan, 2012). Collaborative product development emerges therefore as a key process of competition and sustainability (Büyüközkan, 2012).

Collaborative product development can be described as a collaborative process overlapping with the product development process (Marxt, 2002). To be more specific it is any activity where two or multiple partners contribute complementary resources and know-how in order to develop and design a new or improved product (Dodgson, 1993). Particularly in industries involving complex products, and services R&D is regularly conducted in collaboration (Chapman, 2005). Better mission scenarios, designs, and corresponding product technologies can be developed in shorter amounts of time through the combination of strengths and expertise (Litter et al 1995). To achieve common goals, the literature suggests that Collaborative Product Development and the participation of collaborative networks are regarded to bring valuable benefits to the entities involved and greater resiliency in the context of market turbulence (Camarinha-Matos, 2007).

Collaboration between organizations can exist in one or many stages of the Product Development Process. Figure 1 visualizes Collaborative Product Development and potential overlapping points and individual characteristics of each process from conceptual design to product launch.

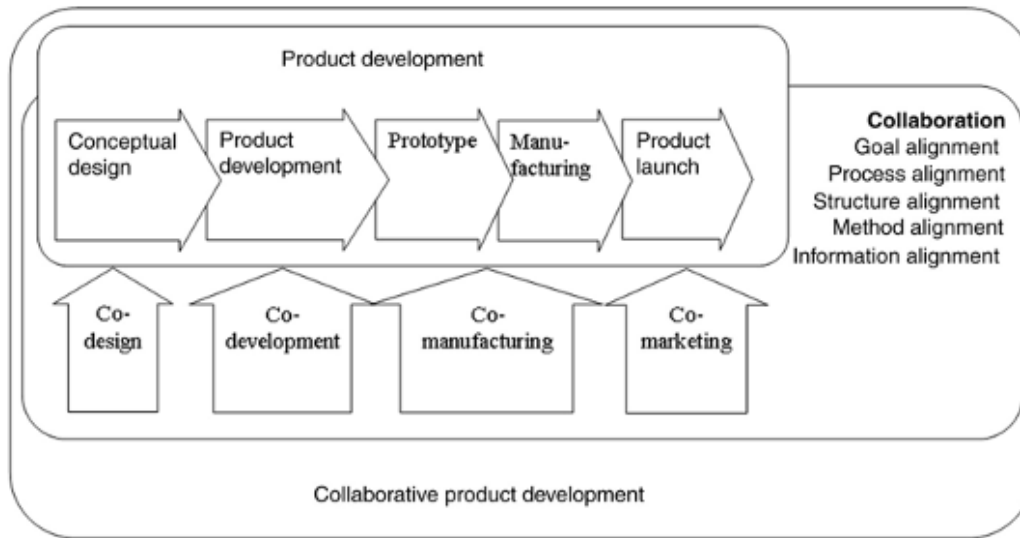


Figure 1: Collaborative Product Development (Büyüközkan and Arsenyan, 2012)

Success factors such as communication and trust are considered to be fundamentals of collaboration, while the existence of collaboration leadership and risk sharing are regarded as secondary issues (Büyüközkan, 2012).

Like any environment involving more than one party, collaboration is exposed to confrontation and limitations due to differences, which lead to some risks. The leakage of a firm's skills, experience, and knowledge that may form the basis of its competitiveness or the additional financial and time costs incurred in managing the collaboration can be trade-offs a company needs to consider when evaluating Collaborative Product Development (CPD) opportunities. Further risks are the loss of direct control by an organization over the product development process, poor communication within and across organizational boundaries as well as higher opportunity costs, documentation problems, and trust issues. Those risks not only affect CPD success but also influence negatively the parties who would otherwise consider collaboration for product development.

Identifying these limitations may aid collaborators in taking the initiative and preventing conflicts in the early stages of collaboration (Bardhan 2007, Litter et Al. 1995, Parker 2000).

Büyüközkan and Arsenyan (2012) argue that even though Collaborative Product Development literature covers a wide range of topics no systematic and holistic approach exists. The absence of a general guideline for practitioners is the main problem in studies dealing with collaboration issues. Given that collaborative product development is a strategic initiative rather than an operational-level problem, collaborative efforts in product development require a conceptual structure for managers considering collaboration and offer the following framework displayed in Figure 2 (Büyüközkan, 2012).

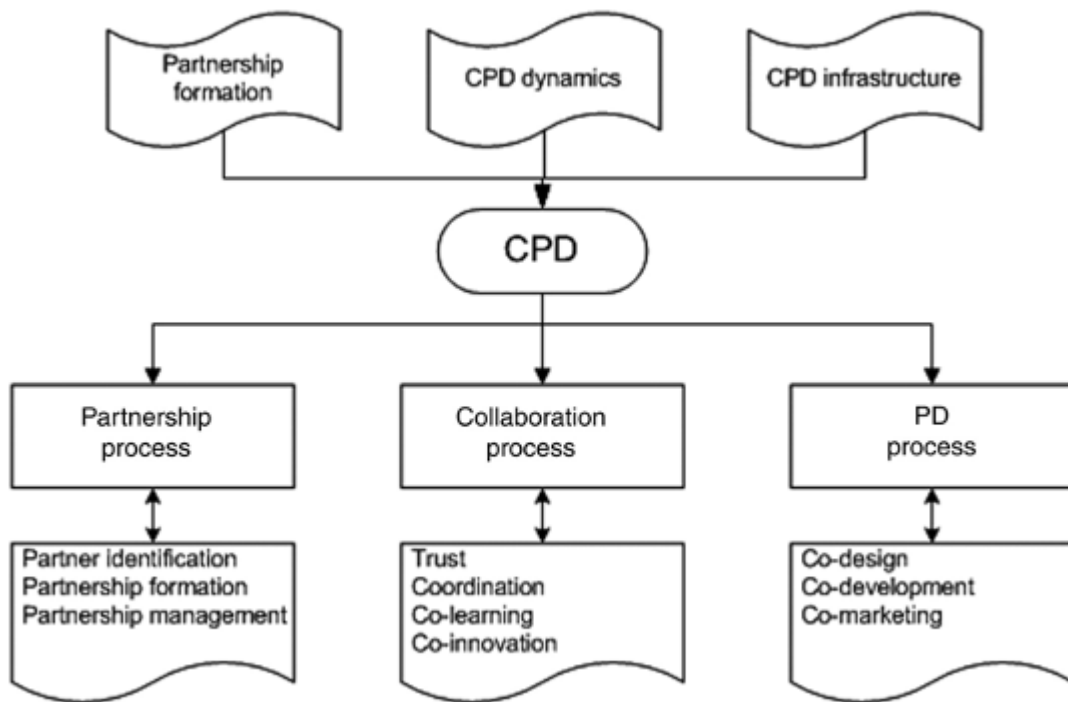


Figure 2. Collaborative Product Development Framework (Büyüközkan and Arsenyan 2011)

The framework suggests that CPD dynamics, partnership formation, and CPD infrastructure merge together as sub-dynamics of collaborative product development. The collaboration process differs from the partnership process in that it focuses on the profits acquired by CPD efforts, whereas the partnership process deals with the evaluation of the partnership. CPD infrastructure refers to the external as the international realities of the collaborating parties.

Partner identification, partnership formation, and partnership management as the main stages of the partnership process. Partner identification is the first important step in the partnership process.

It refers to the recognition of a mutual partner's need and the matching with the appropriate partner (Glaister, 1997).

Approximately 50% of all technology-based companies that have been involved in collaborative innovation projects perceive the ventures with their partner as a failure (Littler, 1995). CPD's success depends on how partners manage the governance of strategic objectives and expert knowledge (Hipkin and Naudé, 2006). In order to ensure the success of the partnership process, the management of the partnership is another major factor.

Within the collaboration, process trust is a key factor between partners and may help to minimize uncertainties and reduce the threat of opportunism in strategic alliances (Shah, 2008). Coordination can be defined as making different people work together for a goal and is therefore naturally another key factor in collaboration. The multidisciplinary nature of CPD requires various activities to be coordinated effectively and efficiently (Mi, 2005).

Co-learning, whether corporate, individual, or technical, is another goal to attain in an effective collaboration process in order to benefit from the synergy produced by collaboration. Gaining knowledge, valuable insights, and experience or seeing new market opportunities can be the most important factor in assessing the success of collaboration (Marxt, 2002). The increasing speed of innovation is one of the key drivers that lead companies to collaboration. Another key factor in the collaboration process domain is identified as co-innovation, innovation as a value-adding by-product of the collaboration process (Chapman, 2005). The determinants of an efficient and rewarding implemented innovation cooperation could be put together through the examination of success factors (Hacklin, 2006). Trust, coordination, learning, and innovation are essential to the success of the collaboration process (Hacklin, 2006).

The third domain of the framework is identified as the actual product development process. Design, development, and marketing of a new or improved product are the main stages (Büyüközkan, 2012).

## **Start-up Ecosystem**

Startups are an excellent means to create jobs and contribute to economic welfare. A structured and innovative ecosystem built around startups is crucial to create and supporting new firms (Tripathi, Oliveira, & Suominen, 2022).

The regional context of the entrepreneurial environment plays an important role in successful startup development, an example is the famous Silicon Valley (Cohen, 2006).

If we take into consideration the biological ecosystem, we can observe the perfect interaction between different species contributing to a perfect environment in which to grow and live (Ives, 2007). Similarly, this should happen within the startup ecosystem in which the growth and development of

startups should be nourished by supporting elements that interact in a similar environment, which is meant to build and foster startups' development and growth (Tripathi, Oliveira, & Suominen, 2022).

But what factors contribute to the birth of start-ups and product development? There are many factors that contribute to such matters such as the nation's natural resources, education, political system, and economic growth which is strictly connected to the industry's ability to create innovative products. Startups are becoming increasingly important in this process (Carree, 2022).

A startup could be defined as a temporary organization that is looking for an appropriate and efficient scalable and profitable business model to apply to the startup (Blank, 2012). An alternative definition of startup defines it as an institution made of humans that is invented to create and deliver new products and services under a condition of uncertainty (Ries, 2011).

The product that come from startups can be classified into two types: hardware-intensive and software-intensive products (Tripathi, Oliveira, & Suominen, 2022). But there have been many studies investigating product development within startups.

For example, Crowne (2002) describes the product development of a startup in four stages:



*Fig. 3 Matteo Pasquato, based on information provided by Crowne (2002)*

If we were to dive deeper into the meaning of ecosystem, we would define it in general terms as a community of living beings that interact among each other but also with other elements that are present in their environment (Ives, 2007).

Throughout the years the term ecosystem has been applied to different fields such as business and entrepreneurship. A business ecosystem, for example, is defined as a network of companies that interact and collaborate with each other to produce new products, services, and systems that might be valuable for society and or customers (Tripathi, Oliveira, & Suominen, 2022).

On the other hand, the entrepreneurial ecosystem is defined as the environment in which different independent actors interact together to create a new business, taking advantage of the fact that they are operating in the same geographical area. (Cohen, 2006).

Cuckier defined a startup ecosystem as:

*“a limited region within 30 miles (or one hour travel) range, formed by people, their startups, and various types of supporting organizations, interacting as a complex system to create new startup companies and evolve the existing ones.”* (Cukier, 2016, p.48)

From this statement, we understand the fact that startup ecosystems are presented within a specific geographical area in which entrepreneurs and other entities (government, VCs, mentors, companies...) collaborate in creating new startup businesses and help evolve the existing ones.

Further research has been conducted on the startup ecosystem exploring the main elements of the startup ecosystem and the relationship within it through the snowball technique. What came out from the research was the fact that each element in the ecosystem influences both positively and negatively each other (Torres, 2016).

From a startup community point of view the term “Ecosystem” has been used to describe the network of people, institutions, and resources that are needed in order to create a startup venture. This type of ecosystem includes entrepreneurs with different skills, backgrounds and experience as well as investors being both private, public and larger companies/institutions that provide the necessary infrastructure for the correct development of startup companies (Tripathi, Oliveira, & Suominen, 2022).

In order to have a deep understanding of the startup ecosystems some elements involved should be considered. The author has identified 8 major themes as the main elements involved within such an ecosystem (Tripathi, Oliveira, & Suominen, 2022). Each theme has also some sub-elements.

The Entrepreneur is defined as the first and most important element within the ecosystem describing it as someone who wants to start a new business. Entrepreneurship can be seen as a sort of lifestyle based on need, usually related to being self-employed. In most cases, entrepreneurs operate within some incubators and/or acceleration programs that act as some sort of mentors providing guidance regarding the development of the startup (Tripathi, Oliveira, & Suominen, 2022).

The support factors are described by (Tripathi, Oliveira, & Suominen, 2022) as the second most important element within the ecosystem. There are various factors that are unique and important for the startup ecosystem providing the right support. Such factors are for example incubators, accelerators, co-working spaces, events, governments, legal framework, media, and mentor (Tripathi, Oliveira, & Suominen, 2022).

*Finance* is an additional important element because, within today's competitive marketplace, companies need some type of funding in order to progress and sustain themselves during the various business development stages. A lack of funding can influence enormously the creation of startups. Also, the finance element is provided by different sub-elements such as established companies, seed investment, and venture capital funds. (M. Libes, 2012)

Demography is based on the previous definition of startup ecosystem which is strictly related to a particular geographical region. According to (Tripathi, Oliveira, & Suominen, 2022) demography plays also a pivotal role in the ecosystem. Also, this element presents sub-elements that influence the ecosystem such as culture and languages, GDP, geography, and history.

Market, meaning that the growth of businesses depends on the number of products and services sold (Tripathi, Oliveira, & Suominen, 2022).

Education, according to (Tripathi, Oliveira, & Suominen, 2022). Education is seen as an important element for the creation of a strong and healthy startup ecosystem. In Finland, for example, there is a fantastic collaboration between educational institutions, research centers and startups creating an interesting innovation hub (Tripathi, Oliveira, & Suominen, 2022).

Human capital, in terms of talent, is regarded as an important element of the startup ecosystem. Speaking about long-term economic growth human capital is seen as the main driver of the ecosystem (Tripathi, Oliveira, & Suominen, 2022).

Technology is the last of the 8 elements that startups find interest in. Today startups usually develop products or services based on the use of software and technology (Tripathi, Oliveira, & Suominen, 2022).



# Open Innovation

Innovation has become a highly discussed topic in the last decades but it can be implemented and encouraged in many different ways. When we speak about open innovation processes it can be connected to both transition towards open innovation and the various open innovation processes (Huizingh, 2002).

The most common way to analyze and understand open innovation is that of innovation that opens up for innovation processes.

*“The use of purposive inflows and outflows of knowledge to accelerate internal innovation, and to expand the markets for external use of innovation, respectively”*

(Chesbrough, 2006)

The majority of people make the difference between open innovation and closed innovation, in which the latter means that companies generate their own innovative ideas and then internally develop, build, market, distribute and finance on their own (Chesbrough, 2003).

In today's dynamic and digital environment, the “do it yourself approach” in innovation management is not that successful anymore (Gassmann, 2006).

Unfortunately, open innovation has not a clear and agreed definition, just because it comes in many forms and shapes. Worth mentioning though is that open innovation is context-dependent. In order to properly understand open innovation, the development of open innovation framework is needed. The first step to understand these terms is to start looking at open innovation less from a dichotomy point of view (open vs. closed) but rather from a continuum with various degrees of openness (Dahlander, 2010).

Dahlander makes the difference between inbound and outbound innovation. Inbound open innovation can be described as the exploitation from an internal perspective of external knowledge, meanwhile, outbound open innovation can be described as the exploitation from an external perspective of internal knowledge (Dahlander, 2010).

An additional point of view is to analyze the concept to consider the various knowledge flows of open innovation. (Lichtenhaler, 2009) distinguish three types of knowledge processes:

- Knowledge exploration
- retention
- exploitation

All these three types of knowledge processes can be used both internally and externally.

## Social Network Theories

As mentioned in the introduction, the startup ecosystem is significantly influenced by two key factors: social network theory and open innovation. To gain a more comprehensive understanding of the dynamics within the startup ecosystem, we will first delve into the concept of social network theory.

Start-ups play a pivotal role in the innovation process (Colombo, 2008). There are several definitions of a startup venture, but the most renowned is the one given by (Blank, 2010) defining it as a company designed to search for a repeatable and scalable business model. The entrepreneur is defined as a person that comes up with an idea and creates a new business, leveraging new products to the market. The entrepreneurial process, on the other hand, refers to all the activities that are carried out by the entrepreneur such as the identification of opportunities, accessing resources, and creating a new venture.

Acquiring external knowledge from whichever sector is of extreme value for the development and success of startup ventures (Stiglitz, 2000). Startups play an important role in transforming entrepreneurial judgment into profit (Spender, 2014). According to current research, creating and establishing relationships with different external partners is indispensable for the success of startups (Teece, 2010). Given that start-up ventures operate in the unknown, adopting open innovation practices is of extreme importance in order to survive the liability of newness (Borgers, 2011).

Reference networks are important elements that influence the success of the innovation process (West, 2006). To be more specific they are considered key for both resource acquisition (Soetanto, 2015) and to the introduction of new products in the market (Lundberg, 2013). Worth mentioning is that it is of extreme importance that start-ups understand that the way they structure and process their network will have a major influence on the processes and outcomes of their own start-up ventures. According to (La Rocca, 2014), networks are the center of innovation, the innovation process and network structure continuously shape each other. In order for a startup to succeed and develop it needs to build and maintain certain relationships with different types of actors. Scientists and researchers have studied this phenomenon and identified different types of actors: incubators, large corporations, VC firms, higher education systems, and potential customers (La Rocca, 2014).

Starting from *incubators* can be defined as companies that assist start-up ventures with services like mentorship, management training, and office spaces. Incubators can be sponsored by different entities such as technology incubators (Kaufmann, 2008), industrial incubators (Clausen, 2011/2015), and University incubators (Rubin, 2015) such as LU Innovation at Lund University. Worth mentioning is

that the existence of all these types of incubators, for the vast majority, helps to develop some sort of support from an innovation perspective to start-up ventures.

*Large corporations* use different mechanisms to partner with start-up ventures mainly through the form of corporate venture capital, internal incubators, strategic alliances, and joint ventures. The number of newborn startups is creating a new necessity to develop faster and more efficient means for large companies to partner up with startups. According to (Weiblen, 2015) there are two main models that demonstrate some strength in engaging successfully in partnership with start-ups: Outside-in platforms and startup programs. The partnership usually ends up with a management guidebook-based approach for addressing start-ups and large companies.

*VC firms* often partner up with start-ups serving as investment advisors to the VC Funds raised. VCs are seen as an entity that provide knowledge and a network of relationships in major fields such as financial, commercial, and technology-based contacts. The main role of VCs is to transfer experience and knowledge between the new firms and the network (third parties).

In order for organizations to establish the right environment for positive growth and development, financial access is needed. Banks, Venture capitalists, and governmental entities are actors that have a strong influence in this ecosystem (Spender, 2016). The active presence of these actors is often regarded as the main reason for the success of start-up ecosystems (Ferrary, 2009). Ecosystems, where banks cooperate with startups, are characterized by lower mortality and higher productivity for the firms (Vitali, 2013).

Open innovation is not complete without the role of higher education systems. The educational system is seen as a crucial factor of knowledge. Simônes (2012) defines higher education systems as the intermediary between producers and consumers of knowledge as they possess all factors and insights that could support start-ups and young entrepreneurs to identify opportunities, access to resources and create a new organization (Simônes, 2012). An additional factor that makes higher education networks extremely valuable is the role of a “network actor” that incentivizes the creation of an innovation network, in which innovative and disruptive knowledge and ideas are shared between potential entrepreneurs (Simônes,2012).

Other actors can be defined as all the other entities, outside the actors mentioned previously, that interact with start-up ventures. Customers can be a valuable source of technological know-how for

new. If the customers get involved in the process they can be regarded as a co-producer of value for the start-up (Von Hippel, 1986). This is especially true in today's digital era, where the customer has become a fundamental part of the co-creation of value for brands and start-up ventures (Von Hippel, 1986).

## **Key Takeaways**

The literature provided offers an overview of theories related to the research topic of Collaborative Product Development in the partnership formation phase within startups. It also explores interconnected concepts, such as start-up ecosystems, social network theories, and open innovation, which appear to have a significant impact on collaborations and product development. However, the author of this thesis aims to further develop the thesis research topic highlighting and analysing more in depth this process specifically within start-up ventures. The primary objective of this research is to identify the key factors that predominantly influence the implementation of these strategies within start-up environments.

# Methodology

This chapter outlines the research methodology adopted for the study on Collaborative Product Development in the partnership formation phase within startup ecosystems.

The author of this master's thesis aimed to use a qualitative research approach to identify the key factors involved in Collaborative Product Development, specifically within startups. The collected data, obtained through a semi-structured interview approach, were analyzed using an inductive thematic analysis, identifying recurring patterns throughout the interviews. The overall approach for collecting and analyzing the data enabled the author to gain interesting insights and information from real-life examples of startups and entrepreneurs discussing their experiences with collaborative product development.

The focus was on understanding the implications, challenges, and success factors associated with these strategic collaborations in their startup ventures.

## Research Design

The research design for this study is a qualitative research approach. This approach allowed the author to gain insights into the nature and key factors involved in strategic partnerships and collaborative product development initiatives within startups. The main objective of the author is to gain a deeper understanding and knowledge of the processes, motivations, challenges, and outcomes faced by startup companies when engaging in collaborative endeavors, despite limitations in internal resources, capital, and experience (Marcon & Ribeiro, 2022).

To obtain a comprehensive overview and enhance the understanding of the collaborative processes within startup ecosystems, the author identified a diverse group of 12 startup companies from various sectors, encompassing different sizes, years of establishment, and operating sectors.

The identification of these startups was facilitated thanks to the connections provided by the Entrepreneurship and Innovation program at Lund University. The author reached out to some guests that have had lectures during the program and that might have had an interesting insight about the thesis research topic. Additionally, the author utilized his own social network and the one provided by Lund University to identify and connect with relevant startup companies. This approach ensured the inclusion of a varied sample that represents the diverse landscape of startups and their collaborative activities.

## Data Collection

The chosen data collection method for this thesis research is semi-structured interviews, which allows for flexibility and exploration of various topics related to Collaborative Product Development within startup ecosystems (Dejonckheere and Vaughn, 2019)

The interview questions were developed based on the collaborative product development framework outlined in the literature review section (Büyüközkan and Arsenyan, 2012).

The author prepared a semi-structured interview document, categorizing the questions into four main categories: (1) General information, (2) Collaboration process identification, (3) Collaboration learnings, and (4) Use of startup ecosystem and social network. *See table 1 under Appendix A.*

This categorization ensured a structure to gather relevant data during the interviews. The interviews were scheduled through email communication and conducted via video calls. All of the interviewees were held in between the months of April and May.

The sample for the study comprised key stakeholders involved in Collaborative Product Development initiatives within the startup sector. These stakeholders primarily included entrepreneurs or employees holding significant positions within the companies.

The selection process for identifying suitable start-ups for the purpose of this research was conducted carefully. To facilitate this process, the author leveraged the social network provided by Lund University and his own, seeking out start-ups that possess valuable insights pertaining to the research topic at hand.

Notably, it is worth highlighting the extensive and meaningful network that Lund University maintains with start-ups. As a renowned institution globally, located in the innovation hub of Skåne, which hosts numerous acceleration programs and incubators, the region consistently fosters the emergence of multiple start-ups each year. Hence, the author of this thesis made a reasoned decision to utilize the provided network as a means to identify start-ups suitable for interviews and to serve the research purposes of the master's thesis.

Following the completion of each interview, the author transcribed the conversations, including the participants' names and the date of the interview. These transcripts serve as recording proofs of the interview sessions.

To facilitate a comparative overview of the selected startups, the author created a table (Table 3) presenting general information about each interviewed startup. This table provides a concise snapshot of basic details pertaining to the selected startups, enabling comparative analysis and understanding.

Company	Founders	Year	Region	Sector	Gender	position	age
Interviewee 1	1	2015	Skåne	Bike	Female	CEO	35-45
Interviewee 2	3	2017	Skåne	Sunscreens	female	CMO & Founder	25-35
Interviewee 3	1	2019	Skåne	Sports	Male	CTO & Founder	25-35
Interviewee 4	2	2017	Skåne	Hospitality	Male	Founder	25-35
Interviewee 5	1	2020	Skåne	Sports	Male	Founder	20-30
Interviewee 6	2	2014	Skåne	Publishing	Male	Founder	40-50
Interviewee 7	2	2019	Skåne & Denmark	Engineering	Male	Founder	45-55
Interviewee 8	2	2016	England	Beverage	Male	Founder & CMO	35-45
Interviewee 9	3	2018	Skåne	Cleaning	Male	Co-founder	25-35
Interviewee 10	1	2015	England	Hospitality	Male	Founder	45-55
Interviewee 11	2	2020	Netherland	Fashion	Female	Co-founder	45-55
Interviewee 12	2	2009	Skåne	IT	Male	CEO	45-55

Table 3, interviewed startups, Matteo Lindgren Pasquato

## Data Analysis

The data collected from the interviews were analyzed using a thematic analysis approach. Thematic analysis is a method used to analyze qualitative data that involves reading through a set of data and looking for patterns in the meaning of the data to find themes (Braun and Clarke, 2013). It is an active process of reflexivity in which the researcher's subjective experience is at the center of making sense of the data. The themes identified will be used to provide a comprehensive understanding of the perspectives and experiences of the key stakeholders involved in the partnership formation phase of Collaborative Product Development initiatives within the startups. The data analysis process will also elaborate on the findings by linking and relating them to the literature review provided in the first sections of the master thesis.

In order to analyze the data from a thematic perspective, the author has opted for an inductive approach, allowing the patterns within the data to emerge organically. This approach was chosen to ensure a more objective analysis, mitigating the potential subjectivity involved in the thematic analysis process.

The thematic analysis consists of several steps. Firstly, the author transcribes all the interviews. Secondly, the coding process takes place, where there are multiple approaches to choose from, but the author opted for InVivo coding. InVivo coding involves coding relevant passages using the interviewees' own words (Saldana, 2009). Once all the interviews have been coded, the codes are reorganized and grouped based on their similarities. These groups are formed by codes that share common characteristics. After grouping similar codes, each group is given a name, representing a theme. *See Table 4.*



Strategy	Collab. processes	Ecosystem & Social Network	Legals	Financial	Communication
Bootstrapping	Consultancy collabs	Chain-network	Legal agreements	Financially creative	Communication leads to trust
DIY approach	Customers collabs	Exchange of knowledge	NDR (non-disclosure agreement)	Loans from university holding	Interactions with universities and communities
Market segmentation	MVP (minimum viable product)	Innovation hub	Contracts	Up-front payments (challenge)	communication misunderstandings
Online selling	Product owner	Raising funds	No strings attached	Capital heavy	Building relationships (personal level)
Gifting strategy	Co-promotions	Networking is valuable but takes time	Due-diligence	Co-financing	Communicating and getting to know each other
Cross-selling	Product testing	Startup-events	GDPR complaints	Financial grants	E-mail communication

Table 4, Themes identification, Matteo Lindgren Pasquato

The provided table shows the categories that have been outlined, based on the similarities of the codes that emerged from the InVivo coding of the transcripts.

The limitation of the thematic analysis is that it involves the risk of missing nuances in the data. The understanding and analysis of the data can be subjective and relies on the personal judgment of the author's point of view, therefore it is very important that the data are analyzed with a critical and objective eye, without obscuring any information or insight.

This chapter has outlined the research methodology adopted for the study on strategic partnerships within startup ecosystems, with a specific focus on the role of Collaborative Product Development.

## **Ethical considerations**

The qualitative research approach adopted in this study involved interviewing various stakeholders, including founders of startups or individuals holding relevant positions within startups. As outlined by Bell, Bryman, and Harley (2019), it is essential to address the ethical considerations involved in such research. Prior to conducting the interviews, the author sought permission to record the sessions as the initial step.

Additionally, each interviewee was provided with a concise introduction, explaining the purpose and topic of the interview, as well as how their information would be utilized. This approach was executed with clarity and without any complications.

To ensure the privacy of the participants who provided insights for the master's thesis research, all names have been anonymized, using designations such as "interviewee 1," "interviewee 2," and so forth. Furthermore, all interviewees were given the freedom to share information at their discretion, without any obligations.

# Findings

The primary objective of this thesis manuscript is to investigate the fundamental factors associated with Collaboration in Product Development in the partnership formation phase within startups. Specifically, the research question driving this master's thesis is:

**RQ1:** *What are the key factors influencing collaborations in product development within startups?*

## Emerging themes

The findings of the study reveal the emergence of numerous distinct patterns/themes across the interviews. Specifically, a total of 14 unique patterns were identified. As mentioned before, the themes were identified following a thematic analysis. The thematic analysis consists of several steps. The emerged themes are seen as key factors influencing the partnership formation phase within collaborative product development within startup ventures.

The author, however, sub-divided the findings into two main groups naming them: **main themes** and the **noteworthy themes**. The former are the themes that recurred throughout all interviews meanwhile the latter are themes that recurred only in some of the interviews.

Notably, three themes consistently recurred throughout all the interviews, referred to as **strategies**, **collaborative processes**, and **social network & ecosystem**.

The theme “**strategies**” was named as it encompasses all the practices and actions undertaken by startups to gain a competitive advantage. The author grouped together all the codes that pertained to any actions taken by the startups under this theme.

On the other hand, “**collaborative processes**” refers to any processes or actions related to collaboration, such as market research, minimum viable product, testing, and feasibility.

Lastly, “**social network & ecosystem**” captures how entrepreneurs or startups utilized the ecosystem or social network. This category encompasses everything related to building connections, knowing people, and receiving support from established entities.

Furthermore, several other noteworthy patterns surfaced during the analysis, including financial aspects, legal aspects, learnings, communication/relationships with collaboration partners, and the motivations that drive collaboration processes.

It is important to highlight that despite the utilization of a semi-structured interview format, each interviewee delved into different topics based on their individual interests. However, it is intriguing to observe that, on a broader scale, the collaborative key factors and adopted strategies exhibited remarkable similarities among the participants.

<b>Strategy</b>	<b>Product dev.</b>	<b>Finance</b>	<b>Ecosystem &amp; Network</b>	<b>Learnings &amp; communication</b>	<b>Legal</b>
<i>It's all about bootstrapping</i>	<i>It all started with product development</i>	<i>Need of upfront cash</i>	<i>The ecosystem helped use raise money</i>	<i>We did lots of sealf-learning</i>	<i>Contracts agreements</i>
<i>Relationships on a personal level</i>	<i>Started with the feasibility analysis</i>	<i>Increasing the NRR on our current revenue base</i>	<i>Venture cup helped us with exposure</i>	<i>Partnerships strengthen your product</i>	<i>We have insurance that covered everything</i>
<i>We added CRM to our platform</i>	<i>We created a theoretic formula with the universities chemical department</i>	<i>We applied for a grant</i>	<i>ALMI helped us a lot</i>	<i>Select parnetsips carefully</i>	<i>Handshake agreement</i>
<i>Trust and loyalty program insurance that cover everything to retain our customers</i>	<i>We di research prototyping and testing</i>	<i>We have limited budget</i>	<i>Getting funding in skåne is a lot harder than in stockholm</i>	<i>Good communication leads to good trust</i>	<i>NDR</i>
<i>We also helped presenting the project though social media, tv and newspapers</i>	<i>Re-structuring influences everything, including product development</i>	<i>We couldn't offer money</i>	<i>The region of southern Sweden is an innovation hub and we made big use of it</i>	<i>Wait before scaling up</i>	<i>Legal aspects are a bit challenging</i>

<i>Word of mouth</i>	<i>We further developed the product with manufacturers</i>	<i>we trusted them to help us out with credits and loans and stuff like that</i>	<i>At the time the ecosystem wasn't great</i>	<i>We learned how to work with public entities</i>	
<i>We divided the market in two segments</i>	<i>We collected feedback</i>			<i>Focus on one market at the time</i>	

*Tab. 4, Quotes from interviews, Matteo Lindgren Pasquato*

## **Elaboration on Findings**

The identified themes bear notable significance as they potentially represent key factors inherent in the collaborative processes of startups.

In the following sections, the author will provide an in-depth exploration of each identified pattern, ensuring a comprehensive understanding for the readers.

To support the validity of the identified themes, selected quotes or excerpts from the interviews will be presented, strengthening the overall credibility of the findings.

## **Strategies**

The theme of strategy emerges as a recurring pattern across all the interviews, encompassing the actions and choices made by each startup. One notable strategy mentioned by several interviewed startups is the decision to prioritize the online channel as their primary distribution channel. This preference for online platforms is exemplified by a statement from *Interviewee 1*: "*Online is just more attractive to us*".

Additionally, another strategy observed among different entrepreneurs is the segmentation of the market or customer base. This approach allows for more targeted insights, analysis, and customized products tailored to specific market segments (Dibb,1998). As *Interviewee 12* explains, "*What we did was segment our customer base into sub-segments to do the cohort analysis*".

A striking finding that consistently emerged during the interviews was the emphasis on establishing trust with various collaborators or partners, including end customers, manufacturers, and

consultancies. Startups place great importance on cultivating personal relationships to build trust (Talaular, Grundei, & v. Werder, 2005).

According to the interviews, the selection criteria for potential partners often revolve around shared views, engagement, and vision. As Interviewee 2 states: *"We've seen the best results to also have a more personal connection with them and not just book like a feature"*.

Bootstrapping techniques emerge also as the primary strategies adopted by startups when initiating their ventures. As Interviewee 1 mentions in the interview, *"It's all about bootstrapping"*

## **Collaborative processes**

The collaboration processes and factors involved in product development emerge as the second pattern evident in all of the interviews. While the literature review provides insights into collaborative development processes, these theories appear more applicable to established companies seeking collaborations at specific stages of their journey. To shed light on the collaborative journey of startups in product development, the author believes it's important to explore the key factors involved.

First and foremost, a recurring theme across all interviews is that every startup expressed the need for collaboration right from the outset. Startups, known for their limited capital resources in the initial stages of development, often rely on collaborations to survive and grow. When asked about the timing of seeking collaboration, each startup affirmed that collaboration was sought from the very beginning. Interviewee 2 affirms this by stating, *"The idea was a collaborative project from the very beginning"*.

In addition to collaborative product development, many interviewees attempted to outline the steps involved in the product development process and their collaborative partners. However, it is challenging to establish a general process as it largely depends on the specific sector in which the startup operates and the in-house resources available. Therefore, a universal process cannot be outlined.

Notably, interviewee 12 provided an intriguing perspective on Collaborative Product Development. As part of his role in restructuring the startup company, he transformed it from an IT company into a SaaS (Software-as-a-Service) company. This restructuring had profound implications, as he explains, *"Yeah. It affects everything. It affects the marketing, the sales processes, the organization, and how*

*we do that. And most importantly, it affects how you do product development."*

According to *interviewee 12* product development serves as a pivotal bridge between sales and production, reflecting the interconnected nature of the collaborative process.

## **Startup Ecosystem and Social Network**

The third recurring theme or category that emerged from all the interviews is referred to as "**startup ecosystems and social networks.**" This theme's prominence can be attributed to the semi-structured interview questions, which included inquiries about the impact of startup ecosystems and social network theories. It is worth noting that the categorization of questions might have influenced the recurrence of this theme throughout the interviews.

The overall impression gathered from the interviews is that the majority of the interviewed startups benefited from the supportive ecosystem provided by their respective regions. These ecosystems played a crucial role in supporting startups, particularly in the early stages.

Numerous interviewees highlighted that their initial collaborations and partnerships were made possible within these startup ecosystems. These environments not only offered necessary support but also facilitated the establishment of valuable contacts and networks. However, approximately 50% of the interviewees emphasized that their networking success was attributed to their prior experiences within the industry. *interviewee 12* aptly expressed this sentiment, stating, "*Building a network takes time, so all initiatives building that type of connection are very valuable*".

These findings indicate the significance of startup ecosystems and social networks in facilitating collaboration and creating opportunities for startups. The statements provided by the interviewees reinforce the notion that these ecosystems serve as crucial platforms for networking and accessing valuable resources.

As previously mentioned, several other noteworthy patterns have emerged from the thematic analysis of the interviews. The prevailing noteworthy patterns identified throughout the collected data were the following: financial aspects, legal aspects, and communication.

## **Financial aspects**

This following pattern considers all financial aspects, which were commented upon by multiple interviewees. The prevailing sentiment among startups is that upfront financial resources are often

necessary to initiate collaborations. However, it is widely recognized in research and existing theories that startups typically face challenges in accessing sufficient capital resources, particularly in the initial stages of their ventures. This sentiment is highlighted by *Interviewee 6*, who stated, *"I looked for some collaboration abroad with the printing house and stuff like that, but it does not matter until I have money"*. *Interviewee 1* further supports this notion by mentioning that *"to go with a big influencer, then you need to pay up upfront a lot of money"*.

These quotes highlight the requirement of upfront financial resources to pursue certain collaborations. If startups lack the necessary funds, they may seek funding through various means, including accelerator programs, business angels, venture capitalists, or bank loans, which can be considered as the very first form of collaboration. This notion is exemplified by one of the interviewees, *Interviewee 6*, who mentioned during the interview, *"the banks were like the first that we realized that we needed to have a good solid collaboration with, that they trusted us and we trusted them to help us out with credits and loans and stuff like that"*.

These findings emphasize the significance of financial considerations in the collaborative processes of startups. The quotes provided by the interviewees serve to reinforce the understanding that securing upfront funding plays a crucial role in enabling startups to engage in desired collaborations and establish partnerships. The financial aspect is often a key factor that startups need to address in their pursuit of collaborative opportunities.

## **Legal aspects**

Additionally, throughout many interviews was the consideration of legal aspects involved within collaborations.

Several startups indicated that they had formal legal agreements, such as written contracts, with the entities they were collaborating with, such as manufacturers and distributors. However, it is worth noting that a few startups mentioned engaging in informal collaborations. For instance, *Interviewee 8*, shared an interesting example stating, *"We just did it on a handshake in a cocktail bar in London."* It is noteworthy that these informal collaborations were not limited to small entities; rather, they involved significant players in the beverage industry.

These findings demonstrate diverse approaches adopted by startups when it comes to legal



aspects of collaborations. While some startups prioritize formal legal agreements to ensure clarity and protection of their interests, others may opt for more informal arrangements, relying on trust and personal connections.

The examples provided reveal the existence of a spectrum in the nature and formality of collaborations within startups, with both ends of the spectrum being represented. This highlights the flexibility and adaptability of startups in navigating the legal landscape of collaborations, as they tailor their approach based on the specific circumstances and relationships involved.

## **Communication**

Lastly, a significant pattern that has emerged from nearly every interview is the recognition of the importance of communication and the associated learning experiences within collaborative partnerships.

Effective and transparent communication between collaborating partners is crucial for establishing trust and fostering long-term collaboration (Apulu & Latham, 2010). Multiple interviewees expressed this sentiment. For instance, *Interviewee 9* asserted that "ongoing good communication...establishes trust automatically over time".

This notion is further sustained by the strategy and approach adopted by *Interviewee 4*. The implementation of a new feature, namely Customer Relationship Management (CRM), was integrated into their existing business. *Interviewee 4* explained, "*We added the whole CRM part to our pro platform, which enabled us to enhance the customer journey. With CRM, we could schedule communication throughout the entire journey using email, WhatsApp, and SMS. These features were developed in collaboration with our customers, generating income to retain most of our team and strengthen the platform while aligning with our customers' shared vision*".

This statement serves as empirical evidence of the pivotal role played by communication in establishing trust and fostering enduring relationships with diverse stakeholders within collaborative settings.

These findings underscore the criticality of effective communication in successful collaborations. The quotes provided by the interviewees not only highlight the positive outcomes resulting from transparent and consistent communication practices but also emphasize the integral role communication plays in trust-building and the cultivation of enduring collaborative relationships. Thus, the interviewees' emphasis on communication underscores its significance as a determinant of overall collaborative success.

# Discussion

In this section, the author will discuss the findings and establish connections with the literature review. A reflexive discussion will also be provided to reflect on the research process and its implications.

The primary objective of this master thesis is to identify key factors that play a role in the partnership formation phase within Collaborative Product Development, specifically within the context of startup ventures. The author notes that the existing theories and literature on collaborative product development provide a general overview of the topic, however more light could be shed focusing on the partnership formation stage within startup ventures. To address this gap, the author conducted semi-structured interviews as the chosen data collection method. The interviews were transcribed and then analyzed using an inductive thematic analysis approach.

As mentioned in the Findings section, the inductive thematic analysis approach has revealed several themes. These findings can be categorized into two groups: main themes, which were consistently present across all interviews, and noteworthy themes, which emerged in some interviews but not in all.

The main themes have been appropriately named. The first theme, **strategies**, encompasses the various practices and actions that startups undertake to gain a competitive advantage. The second theme, **collaborative processes**, refers to the processes and actions related to collaboration, such as market research, minimum viable product, testing, and feasibility analysis. Finally, the **Ecosystem and Network** theme captures how entrepreneurs and startups utilize the startup ecosystem and social networks.

These themes provide valuable insights into the strategies, collaborative efforts, and networking approaches employed by startups in their product development processes.

As mentioned above, the thematic analysis revealed also several noteworthy patterns that represent important key factors with implications for the collaborative product development processes of startups. These noteworthy themes include financial aspects, legal aspects, and communication.

## Interpretation of Findings

In this section, the author will explain and interpret the findings derived from the inductive thematic analysis of the interviews. Starting with the theme of strategy, which, as previously mentioned, encompasses all the actions and practices that startup companies undertake to gain a competitive advantage.

Based on the collected data, it is evident that each startup implements its own unique strategy, influenced by various factors such as the operating sector, available resources, individual perspectives, and motivations. These strategies appear to impact the aspects of partnership and collaborative product development within startups.

For instance, a recurring strategy observed in several of the interviewed startups is market or customer-based segmentation. *Interviewee 2*, for example, expressed that *"Online is just more attractive for us."*

Earlier in the interview, the entrepreneur *Interviewee 2*, mentioned that they segmented the market into online and offline segments. This statement aligns with the findings of the literature review, which suggest that the growth of a business is contingent upon the number of products and services sold (Tripathi, Oliveira, & Suominen, 2022).

On the other hand, an intriguing aspect relates to a strategy adopted by one of the interviewed entrepreneurs, namely the complete outsourcing of product development. According to Stiglitz (2000), the acquisition of external knowledge from any sector holds significant value for the growth and success of a startup venture. However, this assertion was contradicted by *Interviewee 3*.

In the initial stages of his startup, the entrepreneur in focus made the decision to fully outsource the development of his coaching platform. However, this strategy turned out to be a nightmare, as he expressed, *"If I were to do it over and had the knowledge I have now, I would definitely not choose that approach."* What is particularly interesting is the misalignment between the provided theory and Peter's personal experience. The Entrepreneur *interviewee 2* further added that, in retrospect, it would have been better to onboard someone who possessed development skills and shared a strong commitment to the mission and belief in the product offered.

Another prevalent strategy within the entrepreneurial sector is the do-it-yourself (DIY) approach. Due to limited human and financial capital in the early stages, entrepreneurs and startups strive to handle as many tasks as possible on their own.

However, according to Gassmann (2006), this approach is no longer as effective in today's dynamic and digital environment. *Interviewee 1* supported this perspective, mentioning that in the initial phases she "*did a little bit of everything*." However, she acknowledged that as soon as she required specific competencies that she lacked, she had to seek collaboration. All of these adopted strategies affect in one way or other partnerships and collaborative product development within startups.

This approach, as mentioned above, is extremely common among entrepreneurs, especially in the initial phases of development. However, it is quite rare to find an entrepreneur possessing all the necessary capacities to adopt this strategy. Therefore, every startup needs to be resourceful and seek collaborations. As mentioned previously, startups often lack capital resources, making it vital to bootstrap and explore alternative ways to collaborate with different partners. Some interviewees affirmed that they engage in collaborations with influencers. Due to a lack of necessary capital to pay for partnerships, they employ gifting methods as a form of compensation. This strategy is particularly prevalent among product-based startup ventures.

An additional prominent theme that recurred throughout all of the interviews is the theme of **collaborative processes**. As previously mentioned, this theme encompasses all the processes and actions related to collaboration, such as market research, minimum viable product, testing, and feasibility analysis.

In the literature review, the Collaborative Product Development framework was outlined by Büyüközkan and Arsenyan (2012), incorporating traditional product development processes with the inclusion of collaborative features such as co-design, co-development, and co-marketing. Collaborative product development emerges as a crucial process for competition and sustainability (Büyüközkan, 2012).

Interestingly, the interview with the founder of *Interviewee 8* revealed a compelling aspect. Throughout his entrepreneurial journey, he collaborated with established beverage companies. He mentioned that he was selling innovation to these large corporations, and in return, they provided the startup with financial capital and all the necessary resources and channels to gain a competitive advantage and scale. In turn, the startup offered these corporations the opportunity to engage directly

with end consumers and gain insights into their behavior. This phenomenon aligns with the theories provided in the literature review and in addition it highlights the fact that within collaborations both parties might benefit from the partnerships in different ways. Specifically, as outlined in the literature of the collaborative product development the two parties exchange expertise and reduced research and development costs (Büyükoğkan, 2012).

As mentioned in the literature review, Collaborative Product Development is defined as the integration of complementary resources and experiences from two or more partners with the aim of designing or developing a new or improved product (Davis, 2004).

An example of this can be seen in the case of *Interviewee 6*, a small publishing company founded in 2014. Despite being a small company with only five employees, primarily graphic designers, *Interviewee 6* relies on a broad network of consultant collaborations, including editors and authors. He/she emphasized that they *"actually have a large network of consultants that work with us."*

This collaborative structure requires effective workflow coordination. The success of collaborative product development primarily depends on how partnerships and strategic objectives are managed (Hipkin and Naudè, 2006).

When asked about this challenge, he/she highlighted the difficulties in managing the workflow. *Interviewee 6* stated that their strategy is to establish agreements that include deadlines. However, he/she acknowledges that collaboration involves working with human beings who may encounter unforeseen circumstances, which is why collaboration processes in his field/sector typically take around 18 months.

An additional collaborative process that emerged from the findings is collaborative product development involving the end consumer. According to Von Hippel (1986), customers can provide valuable technological knowledge, and their involvement in the process can be seen as co-producing value for the startup. This notion from the researcher was reiterated in several interviews, where interviewees acknowledged engaging in some form of collaboration with end consumers.

For instance, *Interviewee 2* mentioned collecting feedback from consumers to inform product design decisions, while *Interviewee 3* collaborates with coaches who provide feedback to enhance the platform.

These are perfect real-life examples that back up the provided theories about the-customer collaboration benefits.

An emerging trend in today's dynamic and fast-paced environment is the focus on placing the customer or end user at the center of attention in collaborative product development. This approach

involves various phases in which companies, both established and startups, actively seek feedback from end users and, at times, collaborate directly with them. It is evident that startup companies have greater ease in connecting with and establishing closer relationships with end users, thus facilitating collaboration with this particular group.

The third and final major theme that emerged is the one of **Startup Ecosystems & Networks**. The author acknowledges that this pattern recurred mainly due to the use of semi-structured interviews, which influenced the identification of this specific theme. All interviewees were asked about the importance and utilization of the ecosystem and social networks. The author included this question in the interviews because the literature review highlights it as one of the key factors influencing collaborative product development.

According to Tripathi, Oliveira, & Suominen (2022), the establishment of a structured and innovative ecosystem centered around startups is crucial for creating and supporting new firms.

Interestingly, the majority of the interviewed startups originated from the innovation hub provided by the Skåne region. Therefore, when asked about the ecosystem, all interviewees, except for *Interviewee 6*, emphasized the tremendous value of the ecosystem provided by the region, particularly in terms of securing funding, finding competent individuals, and building a strong and reliable network. *Interviewee 6*, however, pointed out that in their sector, Skåne is not the optimal place to operate, stating *"Everything is in Stockholm."* This statement is noteworthy and unique, but the author of this master's thesis believes that each startup, depending on the sector in which it operates, must find the appropriate ecosystem environment. Therefore, it can be concluded that for this specific startup sector, the Skåne region does not offer as many advantages.

From a network perspective, La Rocca (2014) asserts that networks play a central role in innovation and innovation processes, with network structures continuously shaping one another.

According to *Interviewee 12*, *"The ecosystem here is great. But it is because I have had that network before. Yeah. Yeah. It takes some time to build up. Yeah. So, all initiatives, building that type of connection is very, very valuable. Yeah. And having people willing to share information, just like I'm taking this call with sharing information is extremely valuable."*

We can observe some alignment between the theory and the *interviewee's 12* statements. From the CEO's perspective, the ecosystem provides an excellent environment to engage with interesting individuals and expand one's network while sharing valuable knowledge. However, he/she also acknowledges that building a strong and reliable social network requires significant time and effort.

As mentioned in the findings section, several noteworthy patterns also emerged from the analysis of the collected data. The author considers some of these themes as key factors that influence the collaborative product development processes.

One of the main key factors is the financial aspect. It is well-known that startups often lack capital resources in the initial stages of their venture, presenting a significant challenge. Blank (2012) defines a startup as *"a temporary organization that is looking for an appropriate and efficient scalable and profitable business model to apply."* This definition implies that startups are built with the goal of generating profit and growing rapidly. However, in order to scale and generate profit, initial funding or capital is essential.

The literature review highlights the importance of funding for companies to progress and sustain themselves during various stages of business development. A lack of funding can significantly impact the creation of startups. Moreover, financial support can come from different sources, including established companies, seed investments, and venture capital funds (M. Libes, 2012). This notion was supported by many interviewees who emphasized the need for upfront *capital to pursue different collaboration strategies*. For example, *Interviewee 1* mentioned, *"To go with a big influencer, then you need to pay upfront a lot of money"*. Similarly, *Interviewee 6* stated, *"I looked for some collaborations abroad with the printing house and stuff like that, but it doesn't matter until I have money"*.

This statement shows that seeking collaborations in many cases is also financially heavy.

Additionally, it seems evident that the common challenge faced by startups of limited capital resources, often leading to the inability to execute certain strategies due to a lack of financial backing. Therefore, entrepreneurs commonly seek alternative ways to achieve their goals, such as implementing bootstrapping techniques. *Interviewee 1* exemplifies this concept perfectly, stating that *"it's all about bootstrapping"*.

Another no pattern that emerged and is considered key in Collaborative Product Development in startups is the importance of **communication**.

According to the majority of the interviewees, communication plays a crucial role in building and maintaining partnerships. Several statements made during the interviews reflect the significance of communication, ranging from positive to negative experiences. For instance, *interviewee 9* acknowledged that *"ongoing good communication...establishes trust automatically over time"*. This

statement aligns with the theory elaborated by Hacklin (2000), which asserts that "trust, coordination, learning, and innovation are crucial to the success of collaboration processes." Additionally, *Interviewee 2* revealed that communication with the manufacturer was fairly easy, and over time, trust was established.

The aspect of relationships also emerged in some of the interviews, which the author finds particularly interesting. There seems to be a growing importance placed on relationships and human empathy by entrepreneurs and startups. The founder *Interviewee 1* made a significant statement, saying, "*It's all about relationships.*" *Interviewee 2* revealed that when collaborating with influencers, they have found that "having a more personal connection with them and not just booking a feature" yielded the best results. Teece (2016) supports these viewpoints by asserting that creating and establishing relationships with various external partners is indispensable for the success of startups.

All of the mentioned and analyzed key factors have emerged from the inductive thematic analysis of the interviews conducted. As a result, the study has outlined the key factors that influence Collaborative Product Development.

The topic under investigation is inherently complex, and while the identified key factors have been thoroughly analyzed, explained, and linked to existing literature, it is important to note that collaborations are highly subjective experiences. By stating this, the author acknowledges that the research can identify and outline factors that may influence Collaborative Product Development, but there is no universal approach to successfully pursue such a strategy. The success of collaborations largely depends on individual experiences and the techniques adopted by startups, as highlighted by the key factors outlined in this study.

## **Contributions**

The following master's thesis contributes by shedding light on strategic partnerships and Collaborative Product Development, specifically within startups. From a research perspective, this contribution is relevant for future studies. The author believes that the identified key factors can be further analyzed and integrated into the existing literature. This study serves as a baseline from which future research can build upon.

From a practical standpoint, this master's thesis contributes by highlighting the key factors that influence collaborations. Entrepreneurs and startup ventures can utilize this research to make informed decisions when pursuing collaborations. However, it is important to note that the study does



not provide all the answers, but rather focuses on certain factors that play a pivotal role in collaborative product development. Nonetheless, it is valuable information that entrepreneurs and startups can leverage for their benefit.

The contribution to policymaking can be quite challenging. However, considering the recurrent theme of financial constraints faced by startups in their early stages, it may incentivize governmental entities to enhance and expand support for startup companies operating within various startup ecosystems. While this contribution has been acknowledged to some extent prior to this study, the research presented here reinforces the notion mentioned above.

# Conclusion

The thesis manuscript was structured in a clear and coherent manner, allowing readers to easily comprehend the thesis topic and the research gap. Throughout the manuscript, the author aimed to go into the key factors that significantly influence Collaborative Product Development within startup companies.

The literature review presented provided readers with a thorough understanding of relevant theories in the field of strategic partnership and Collaborative Product Development. The author introduced a general framework for collaborative product development processes and also incorporated topics such as open innovation, startup ecosystems, and social network theories into the literature review. This comprehensive approach aimed to provide readers with a holistic view of the collaborative processes involved.

One observation made by the author is that existing theories and literature provide a broad definition and overview of collaborative product development, without specifically focusing on this process within startup ventures. This is seen as research gap.

The author of the thesis chose to conduct qualitative research, specifically by conducting semi-structured interviews with various entrepreneurs or employees from startups who held relevant positions. The intention was to gather insights and perspectives from real-life examples, thereby contributing to the existing literature.

A total of 12 startups were interviewed, and selected to represent diverse characteristics such as size, year of establishment, and sector of operation. This diversity facilitated a more comprehensive understanding of collaboration processes within startups.

Thereafter a thematic analysis approach to analyze the collected data was adopted. This approach involved identifying common patterns or themes that emerged across the data obtained from the different interviews (Saldana,2009). Prior to identifying the themes, the author employed an InVivo coding approach, which utilized words directly extracted from the interviews to describe the data. Once the coding process was completed, the coded data were grouped into different categories based on similarities in topic.

What emerged from the thematic analysis of the collected data were 14 recurring themes that were present throughout the interviews. These themes could be further divided into two groups: main

themes, which recurred in all of the interviews, and noteworthy themes, which were present in only some of the interviews.

Within the main themes group, three key themes emerged. The first theme, referred to as "**strategy**," encompassed the actions and strategies adopted by the startups in order to gain competitive advantages. The second theme, "**collaborative processes**," encompassed various actions related to collaboration, such as design, prototyping, and testing. Lastly, the theme of "**ecosystem and social networks**" recurred prominently, which may have been influenced by the choice to conduct semi-structured interviews, thereby incorporating a slightly deductive approach to the analysis.

The noteworthy themes that recurred throughout the interviews can also be considered influential key factors in collaborative product development for startups. The author observed that financial, legal and communication aspects, with collaborating partners were the most significant factors influencing collaboration processes within startups.

The interviews revealed that human relationships and establishing a personal connection with collaboration partners were seen as key factors influencing the decision to pursue or not pursue a collaboration. Clear communication was seen as a good tool to use in order to establish long lasting relationship and trust with collaborating partners.

The financial aspects were mentioned by the majority of the interviewees, highlighting the challenges and lack of financial resources, particularly in the early stages of startup development, as a significant obstacle to collaboration.

Lastly, the legal aspects appeared to have an influence on the collaborative intentions of startups. Startups adopted various approaches, ranging from formal agreements to more informal deals. This variability in approaches reflects the diverse strategies employed by entrepreneurs within the startup sector.

The author can conclude that the findings presented in the thesis highlight key factors that influence collaboration and product development in the partnership formation phase of startup ventures. However, it is important to note that these key factors may vary depending on the individual circumstances of each startup. Each startup has different internal competencies and, as a result, may have unique collaboration needs. Therefore, the influence of different key factors may vary based on the specific situation of each startup.

The findings derived from the conducted interviews provide a realistic picture of how, when, and why startups seek collaborations. Additionally, the thesis explains the management aspect of collaborations within this sector. These findings offer a comprehensive understanding of strategic partnerships and Collaborative Product Development within startup ventures. Real-life examples from the interviewed startups further illustrate the concepts discussed in the thesis.

## **Practical implications**

The main objective of this master's thesis was to explore the key factors that influence partnerships formation in Collaborative Product Development within the startup ecosystem. To achieve this goal, the author conducted interviews with startups from various sectors, of different sizes, and at different stages of development. This approach aimed to provide a comprehensive analysis of the research topic.

Upon completion of the interviews, the author transcribed them and initiated a coding process. InVivo coding, which involves using descriptive words derived from the interview quotes, was the coding approach chosen by the author. The coded data were then grouped into different categories or themes. The resulting themes consisted of two main types: the main themes, which emerged in all of the interviews, and the noteworthy themes, which emerged in only some of the interviews.

In summary, the key factors influencing collaboration and collaborative product development within startups include the strategies adopted to gain a competitive advantage, the steps involved in collaborative product development, which are highly dependent on available internal resources, and the utilization of ecosystems and networks to establish partnerships.

Additionally, there were other noteworthy themes that emerged from specific interviews, such as the financial aspect, communication, and relationship aspects with collaborative partners.

It was apparent from many entrepreneurs that when seeking collaborative partners to develop their startup and its products or services and/or access funding, establishing a strong personal relationship that builds trust over time was crucial.

The author hopes that by identifying these key factors, entrepreneurs will be better equipped to find suitable partners while considering these important factors that shape collaborative product development within startups.

## **Limitations**

The author of this thesis has gained numerous insights into the topic under study through the conducted interviews.

First and foremost, it is evident that entrepreneurs possess unique personalities, each with their own set of principles, visions, and missions. What should be specified is that each interviewee guided the interview based on their individual interests and knowledge.

Although a semi-structured interview approach was adopted, the outcomes of the interviews varied slightly. Some entrepreneurs focused more on certain aspects, potentially impacting the consistency of the collected data. While the semi-structure interview aimed to provide structure and gather relevant data on the research topic, it is possible that certain aspects were overlooked, or that the wrong questions were asked. Ideally, open-ended conversations with the entrepreneurs would have been beneficial. However, due to time constraints and the availability of the interviews, the author opted for the semi-structured interview method.

Additionally, time constraints posed a challenge as entrepreneurs are often busy individuals. Despite their willingness to help and share their knowledge, the limited time available for interviews may have influenced the responses provided. However, during the data analysis process, there was a sense that a saturation point was reached, indicating that sufficient information had been collected.

Another potential limitation lies in the chosen analysis approach. As mentioned earlier in the thesis, an inductive thematic analysis was employed, allowing the collected data to reveal the information itself. However, this approach was combined with a slightly deductive approach due to the semi-structured interview format, which featured four main categories of questions: general information, collaboration process and identification, learnings, and the use of social networks and startup ecosystems.

# Appendix

## Semi-structured interview document

### General information

- What's your company about?
- When did you found your company?
- What's the legal form?
- How many employees/ founders?
- Did you break even?
- where are you located?
- What is your market?
- What's the motivation behind your start-up?
- What is your mission vision, goal?
- What is your USP (Unique selling proposition)

### Collaboration Process and Identification

- At what stage did you realize you had to seek for collaboration to develop your product further? What made you realize it?
- Could You describe the process you have been through as a start-up when seeking for collaboration? What I mean by this question is to describe all the steps you have been through in order to come to final product you are selling today
- At what stages of the product development process did you collaborate with external partners?
- How did you identify the potential partner?
- what were you looking for?
- why?
- how?
- When?
- What were deterring factors for collaborations that you did not pursue?
- Who was responsible for the partnership management? What was your legal structure for the collaboration?
- How did you establish trust between you and the collaboration party?
- How did you coordinate the workflow and the development of the product?
- Did you have any collaboration as far as co-branding? (Other brands? Influencers? events?)

### Collaboration learnings

- What new knowledge did you learn from this collaboration process? Did you feel you enhanced the knowledge to the other party?
- Did your product evolve during the collaboration process if yes why and how?
- What are your key learnings from this collaboration? What would you do differently?

### The use of the startup- Ecosystem and social network

- How did you use the ecosystem and startup infrastructure if any in your region country? How did it help or support you?
- How important and useful has your social network been in the development of your start-up?

## CODES AND ORGANIZATION OF THEMES

Strategy	Collab. processes	Ecosystem & Social Network	Legals	Financial	Communication
Bootstrapping	Consultancy collabs	Chain-network	Legal agreements	Financially creative	Communication leads to trust
DIY approach	Customers collabs	Exchange of knowledge	NDR (non-disclosure agreement)	Loans from university holding	Interactions with universities and communities
Market segmentation	MVP (minimum viable product)	Innovation hub	Contracts	Up-front payments (challenge)	communication misunderstandings
Online selling	Product owner	Raising funds	No strings attached	Capital heavy	Building relationships (personal level)
Gifting strategy	Co-promotions	Networking is valuable but takes time	Due-diligence	Co-financing	Communicating and getting to know each other
Cross-selling	Product testing	Startup-events	GDPR complaints	Financial grants	E-mail communication

## INTERVIEWEE OVERVIEW

Company	Founders	Year	Region	Sector	Gender	position	age
Interviewee 1	1	2015	Skåne	Bike	Female	CEO	35-45
Interviewee 2	3	2017	Skåne	Sunscreens	female	CMO & Founder	25-35
Interviewee 3	1	2019	Skåne	Sports	Male	CTO & Founder	25-35
Interviewee 4	2	2017	Skåne	Hospitality	Male	Founder	25-35
Interviewee 5	1	2020	Skåne	Sports	Male	Founder	20-30
Interviewee 6	2	2014	Skåne	Publishing	Male	Founder	40-50
Interviewee 7	2	2019	Skåne & Denmark	Engineering	Male	Founder	45-55
Interviewee 8	2	2016	England	Beverage	Male	Founder & CMO	35-45
Interviewee 9	3	2018	Skåne	Cleaning	Male	Co-founder	25-35
Interviewee 10	1	2015	England	Hospitality	Male	Founder	45-55
Interviewee 11	2	2020	Netherland	Fashion	Female	Co-founder	45-55
Interviewee 12	2	2009	Skåne	IT	Male	CEO	45-55



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