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MASTER'S THESIS

Comparing B2B Sharing Economy Models in Norway and South Africa: Role and interactions with the regional entrepreneurial ecosystem

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Preface

This master's thesis is the final part of our education at Western Norway University of Applied Sciences, master in Innovation and Entrepreneurship 2020-2022. The topic of our thesis was very new to us when presented with. However, it appealed to us and made us want to know more about the topic. This combination has made the journey both difficult but also rewarding when we learned more about how B2B sharing economy help shape an entrepreneurial ecosystem.

We want to thank all our interviewees and informants that showed genuine interest in or project and gave us interesting conversations and observations. Thanks to everyone that have given us contact information to new leads and made it possible for us to explore new angles of the phenomena.

We also want to thank our network of friends that have supported us and helped us relax when we are not writing, this has helped a lot to distinguish work from leisure. Furthermore, we want to thank our classmates that everyday have been by our side at "Fabrikken", and a special thanks to Sigbjørn Lie Honve that has been keen to discuss the best ways to do our research and in general made the days more fun.

We want to thank Kelvin Ivankovic which have made this thesis possible by sharing his project with us, sharing his network of industry partners and his relentless effort to find similar cases for us to study in South Africa. Ivankovic has been someone that we could ask for little spurs of guidance whenever we needed it and we genuinely appreciate it.

Lastly but not least we want to thank our supervisor Inger Beate Pettersen for always being there to guide us and give us constructive criticism when needed. She is also the reason this thesis is a comparative one and should get all the credits she deserves for making us a part of the INTPART program, thus making it possible to compare our case in Bergen with the case in Gauteng, South Africa.

Thanks!

Bergen, May 2022

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Abstract

In recent years one has seen the rise of sharing economy models in the peer-to-peer market with platforms like Airbnb and Uber. However, in the business-to-business market the concept has not achieved a good foothold yet. Norwegian Catapult (Katapult, 2022) have in recent years opened five catapult centers across Norway to aid startup companies in the early phase of development where a B2B sharing economy model is central. These Catapult centres gave us a good model to do a deep dive into, to better understand how the Catapult in Bergen operates in its local entrepreneurial ecosystem. Through the INTPART project we also got the opportunity to do comparative research in the Gauteng region in South Africa to look at the similarities and differences with the model of The Council of Scientific and Industrial research (CSIR) and the Catapult.

In the literature chapter we introduce relevant theory that we used to form an interview guide, in this comparative case study we went with an explorative and thematic approach which made it possible to explore new ideas through the process of interviewing and analyzing. These methods made our research more agile and gave us the ability to alter the direction of our research without compromising legitimacy of the findings from the earliest interviews.

Both facilitators in this thesis have their own adaptation of the B2B sharing economy. The Catapult uses a decentralized version with focus on social capital and the CSIR is more centralized with a focus on human capital. Furthermore, we discuss the importance of tangible and intangible resources provided by the facilitators and how these centres fulfill the entrepreneurial ecosystem. Finally, we explore how the B2B sharing economy and the co-creation processes aid startups in the early phase of development.

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1 Introduction

In this master project, we aim to focus on the sharing economy that have seen success across countries and industries in the shape of a peer-to-peer model (P2P). However, we want to research the business-to-business “B2B” aspect of sharing economy. The P2P and business-to-customer (B2C) sharing economy has seen a rise with platforms like Airbnb, Uber, and Lyft. These sharing economy models have transformed the narrative in the markets for service providers from the traditional B2C logistics towards the sharing of goods instead of owning (Gesing, 2017). This model is called sharing economy and works so everyone can be providers of properties, equipment, and services (Grifoni et al., 2018). In turn, the sharing economy reduces the need for everyone to own everything and makes it possible for both companies and people to utilize dormant assets in a better way. Furthermore, the model provides a sustainable practice by reducing waste, giving cheaper access to goods and services and lower the barrier to entry for startups (Grondys, 2019).

It exists a lot of research in the P2P and B2C segment of the sharing economy, but when it comes to B2B sharing economy there is limited research. One reason for this is a limited focus in B2B sharing economy models in the market and lack of facilitators for sharing between businesses (Grondys, 2019). As a result, there several important questions about the B2B sharing economy that have not been answered yet. Thus, the lack of existing research on the topic made us want to explore this phenomenon closer. We are also inspired by Kelvin Ivankovic’s PhD project “*The B2B sharing economy: Exploring the potential of B2B resource sharing for innovation, sustainability, and entrepreneurship*” and have developed our master thesis in close interaction with him.

There are new platforms and infrastructure models that are emerging globally, stimulating the emergence of B2B sharing economy. One such model is the Ocean Innovation Norwegian Catapult centre. At the catapult the facilitator gives access to their partners equipment and expertise for prototyping, testing and verification for a reasonable fee(Norwegian-Catapult-Centre, 2021). This kind of infrastructure is mainly accessible for startup companies, and “small and medium-sized enterprises” known as SMEs. Furthermore, the study is comparative, and we have explored the

catapult center “Ocean Innovation Catapult” in the Bergen region in Norway, and the “Council for Scientific and Industrial Research” in the Gauteng region in South Africa. The comparative perspective adds to the research, as it enables us to explore differences and similarities in the B2B sharing economy model across borders, and further understand how startups may benefit from these models to recognize how the B2B sharing economy model and co-creation processes interact within two different entrepreneurial ecosystems.

Furthermore, we will explore the potentials of the B2B sharing economy with a spotlight on how this model can be utilized in catapult facilities and innovation centers to help reduce the liabilities of being a new enterprise, and to enhance startups’ chances to succeed in early phase of technology development and market entry. To investigate this topic, we draw on relevant literature on sharing economy, including literature about P2P, B2C and B2B. Additionally, we present entrepreneurship literature with a focus on the concepts of liability of newness, barriers to entry and literature about entrepreneurial ecosystems. Together with the literature and secondary data, we adopt a qualitative approach using qualitative interviewing and site visits to get a good set of primary data.

Based on what we have discussed in the previous sections, we have formulated a research question: ***How can a B2B sharing economy model aid startups in the early phase of technology development and market launch?***

To answer this research question, we aim to explore two relevant aspects of the B2B sharing economy:

1) *What resources, competencies and infrastructure are available and how are they utilized by startups in early phases of development?*

2) *How do the sharing and co-creation processes materialize in the B2B sharing economy model and how do these models interact in the wider entrepreneurial ecosystems?*

2 Theory – literature

In this chapter we explore relevant literature on the sharing economy, liability of newness, barriers to entry, entrepreneurial ecosystems and how catapult and innovation centers fit into the entrepreneurial ecosystem to enable co-creation.

2.1 The Sharing Economy

Sharing economy is an umbrella term for an economic model that induces different economic, environmental, or social values (Acquier et al., 2019). It is defined as a network of people or entities who provide goods and services to each other, ideally at a lower cost than purchasing it from a company or other traditional service providers. It also includes the trading, sharing, and renting of goods and services on an on-demand basis, instead of owning the asset (Grifoni et al., 2018). The central idea is to make use of tangible assets such as dormant or under-used equipment, and also intangible assets such as human capital and social capital (Acquier et al., 2019). The majority of sharing economy models are organized as digital platforms to make it more accessible to users.

Sharing of resources is not something new, but in the sharing economy the means have evolved. With this model people can rent out their home to someone who is from the other side of the world through platforms like Airbnb (Acquier et al., 2019). There are many examples of sharing economy platforms like Uber and Airbnb that target consumer markets, also known as the P2P model. Since these P2P sharing models have grown significantly over the past decade, research on the P2P model has flourished. There is now growing interest in the B2B context amongst researchers and practitioners. Hence the focus of this study is on the B2B aspect of the sharing economy.

2.1.1 The B2B Sharing Economy

The core of a B2B sharing economy lies in how it is structured to give companies access to equipment through platforms like *V-industry* and *Klickrent* (Chuah et al., 2021). Furthermore, there are market opportunities in the sharing of intangible assets such as specialized labor when there is a need for specialized expertise (Ciulli & Kolk,

2019). The sharing of these tangible and intangible assets can streamline companies by making them more agile and ready to adapt quickly to changes in the market in a cheaper and more effective way (Grondys, 2019). The sharing economy model results in a few key benefits for businesses by enabling them to pay for access to a resource via a network, rather than being forced to own it, contrary to the traditional model where a company owns all their assets. This network could then lead to collaboration and co-creation and foster good relationships and trust with a broader network of industry players which is vital for B2B relationships (Melander & Arvidsson, 2021).

In the B2B market, there have not been as many attempts to utilize the sharing economy model, consequently the literature on the phenomena is just partially filled. However, there are motivational factors like the P2P market, but with more emphasis to use the model to strengthen firms' competitiveness in markets (Grondys, 2019). The main findings from this study about "Implementation of the Sharing Economy in the B2B Sector" where 352 entities were studied using "computer-assisted telephone interviews" suggests that firms that have a lot of fixed assets would be open to exchange their assets with other firms. However, there are barriers like a lack of technological and formal solutions that must be resolved to be able to implement a B2B sharing economy model successfully (Grondys, 2019).

We may assume several similarities between the P2P sharing economy model and the B2B, especially comparable roadblocks; the need for insurance policy, trust, and legal loopholes (Grondys, 2019). In general, B2B relationships are built on an existing long-term relationship between businesses and are often very complex. These relationships are built up by a long tradition of cooperation and joint ventures (Melander & Arvidsson, 2021). However, there are opportunities with a more open model where the connections are structured like a network instead of the traditional solid-based relation (Melander & Arvidsson, 2021). The network model gives the firm more connections it can rely on, without the need to build a network from the ground up (Melander & Arvidsson, 2021).

2.2 Barriers to entry for startups

About one third of startups in Europe do not survive the first year of operations, and half of those do not make it to their seventh year. The cause of this phenomenon is the liability of newness and the high barrier to entry in every aspect of starting a business (Islami et al., 2019). These statistics may vary from year to year, country to country and industry to industry, but the message remains. Islami's article centers around the effects of barrier to entry and the impact these barriers have on incumbents in a competitive industry (Islami et al., 2019). To understand the factors of barriers to entry, Islami researched Porters competitive forces and discussed in detail the "Threat of entry" perspective which include: economies of scale, product differentiation, capital requirements, access to distribution channels, cost disadvantages independent of size and government policy (Porter, 1979).

Product differentiation are related to marketing, brand loyalty to established businesses, customer service and first to market strategy (Porter, 1979). These factors usually increase over time and adds to the barrier to entry by established businesses owning a majority share of the existing customer base. Furthermore, product differentiation leads to young companies being forced to spend a lot of money to compete with existing firms in the same market (Islami et al., 2019). This ties directly to Porters next force, capital requirements.

Capital requirements refers to the investments that companies require to operate their business. Startups must invest financial resources to develop their business to compete with established companies. Especially if the capital needed to finance advertising and R&D are unrecoverable expenses (Porter, 1979). Capital requirements and product differentiation are linked together in a way that strengthens the barrier to entry in highly resource dependent industries (Islami et al., 2019).

Cost disadvantages independent of size are the cost advantages available to one business, that its competition does not have access to. This means that in order for a startup or SME to compete with existing firms, they need to gain access to "proprietary technology, the best raw materials sources, assets purchased at pre-inflation prices, government subsidies, or favorable locations" (Porter, 1979). These assets are hard

to come by for young companies and make it challenging for these companies to reach the market, or in the worst case may result in their early demise.

When it comes to the B2B sharing economy, there are a few of Porter's threats to entry that are more relevant than others. Product differentiation, capital requirements and cost disadvantages independent of size were identified as most significant threats to entry and were therefore included in this study. Additionally, liability of newness has been added to the theory to further understand the startups perspective in the B2B sharing economy.

2.3 Liability of newness

Liability of newness refers to the death rate of companies, young and old, when entering a new market (Stinchcombe, 1965) . For old and established companies entering a new market, the most distinct factor for failure is the lack of recognition in a new field. However, for young companies and startups there are several components resulting in the liability of newness, including the lack of recognition. There is a need for experience and resources such as financial, human and social capital which are the most common factors for an early demise (Yang & Aldrich, 2017) ; (Morse et al., 2007). Figure 1 shows how these factors grow with the entrepreneur to a new venture

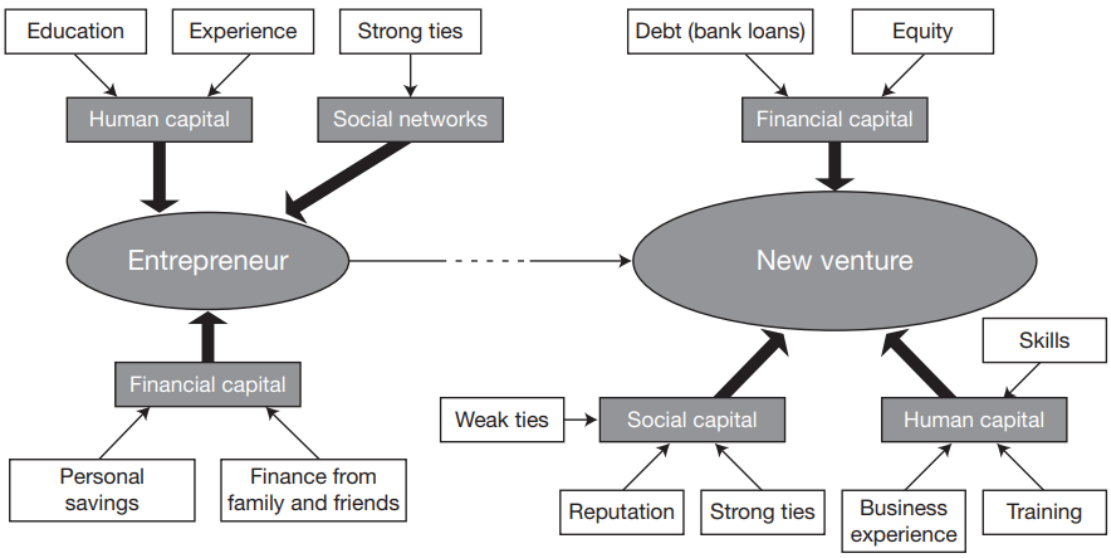

*Figure 1 Resources needs: From entrepreneur to new venture (*Jones et al., 2013*)*

Financial capital refers to the startup's accessibility to physical and organizational resources and is categorized as a tangible resource Figure 2. During the early stages of development, entrepreneurs rely on personal financial resources and those given from family and friends. As the entrepreneur moves towards a new venture there is a transition from "insider" to "outsider" finance and investors becomes more important to gain access to tangible resources such as equipment and machinery, as seen in Figure 1 (Jones et al., 2013).

Social capital refers to the resources a startup can access via various networks. Friendships and personal ties are important to access resources at less than market price for entrepreneurs. These pre-existing networks and the ability to build new relations is key, they shape the path of a startup as they are the resources currently available and ready to be utilized to solve the problems at hand. As the firm grows, more value-rich networks may emerge and the entrepreneur's ability to form quality relations and obtain a reputation in the industry become a prevalent skill for the development of the startup as seen in Figure 1 (Jones et al., 2013). Although, this aspect lessens during the lifespan of a startup as it moves from liability of newness to liability of adolescence, and gains external relationships along with traction in the market, the early phase of the organization is still in jeopardy to the social capital (Yang & Aldrich, 2017).

Human capital refers to the combined knowledge, experience, judgement, education, and insight of the people working in a firm and lies within intangible resources in Figure 1. When an entrepreneur moves towards being a new venture, the human capital evolves to functional skills such as technological expertise, marketing, and business development, as well as the ability to innovate and solve problems within the organization (Jones et al., 2013).

These factors can be categorized as tangible and intangible resources, as shown in Figure 1. Whereas tangible resources are physical, organizational, and financial assets. While intangible resources include human capital, social networks, and reputation.

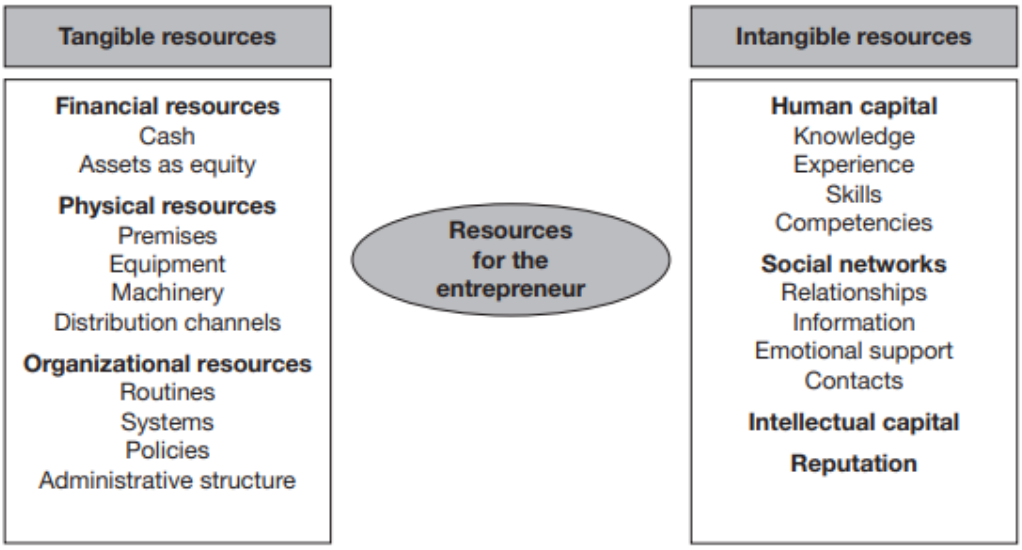

*Figure 2 Resources for the entrepreneur: Tangible and intangible resources (*Jones et al., 2013*)*

Even though tangible resources are tools for a startup to produce, develop, and implement their product in addition to being vital for survival and growth, intangible resources are described as the most important by Jones. Tangible resources are less important to reach a competitive advantage because intangible resources develop internally with the entrepreneurs and cannot be replicated by competitors in the same matter (Jones et al., 2013). However, every startup is different, and even though some generalization about their struggles to reach the market are valid, it is dependent on a combination of the financial, human, and social capital to decide their liability of newness.

2.4 Entrepreneurial Ecosystems

The entrepreneurial ecosystem (EE) is the environment entrepreneurs are in and consists of all the actors that have an impact on the entrepreneur and his outputs. This definition builds on the terms *entrepreneurial* and *ecosystem*. Entrepreneurial refers to a process where opportunities for the creation of goods and services are explored, evaluated, and utilized (Stam & Van De Ven, 2021). Whilst the second part *ecosystem* derives from biology and describes all the interactions between living and non-living components. Applied in the context of an entrepreneurial ecosystem it describes the co-evolution of diverse organizations and institutions that perform different but complementary roles that enables the growth of the wider ecosystem (Stam & Van De Ven, 2021).

New companies rely on external stimuli to overcome the liabilities of newness and the struggles they face in their first years of operation. This stimulus comes from a wide range of infrastructure made up of resources, institutional, and organizational infrastructure which each play an important role in supporting the development of new companies (Wolley, 2017). The institutional aspect handles the rules and cultural norms in the local EE, together with the entrepreneur's social network. Whiles the resources refer to the physical infrastructure, financial resources and human capital that is available in the EE *(*Stam & Van De Ven, 2021*)*. An entrepreneurial ecosystem is illustrated in Figure 3 and serves as a general overview of the key elements in the EE to ensure productive entrepreneurship.

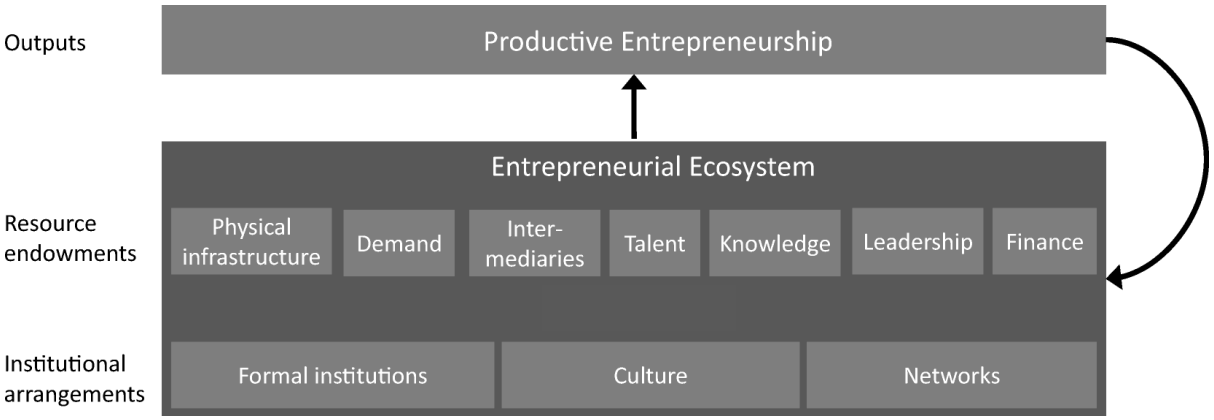

*Figure 3 Elements and outputs of the entrepreneurial ecosystem (*Stam & Van De Ven, 2021*)*

The way the EE is layered in the model, the institutional arrangements are the foundation of the model and are an underlying condition for the ecosystem, and guide how the different actors interact. Depending on the underlying trust and cultural norms regarding cooperation there are differences in how the resources are distributed in the EE (Cao & Shi, 2021). Arguably the trust in the EE is a key driver for a well working system, and this is a factor that is embedded in how the institutional arrangements are in the given context (Cao & Shi, 2021).

The second layer is the recourses that are available in the EE and contain elements such as physical infrastructure, knowledge, finances, and other important factors (Stam & Van De Ven, 2021). The financial infrastructure is a combination of public money through grants, venture capital investor and other sources of funding to sustain entrepreneurs. Furthermore, there is a need for sharing and enabling physical infrastructure and knowledge, this is done through different mechanisms in different EEs, such as catapult centers and innovation centers.

2.4.1 Catapults and Innovation Centres role in the Entrepreneurial Ecosystems

To offer knowledge sharing and physical equipment there are different initiatives that can facilitate this. One of them is catapult centres (Kerry & Danson, 2016) that are grounded in the regional ecosystem. These centers play an important role in their local EE to foster innovation and drive regional development and economic growth (Kerry & Danson, 2016). A catapult center is an organization that facilitate the sharing of resources to startups and SMEs, so they get access to expertise, equipment for testing and prototyping, and networks in both market and development sectors (Great Britain. Department for Business & Strategy, 2021). These catapult centres share a network of industry partners that offer equipment and knowledge and therefore provides parts of the second layer in Figure 3 and thus are a critical part of the research and development tools that are available in an EE.

Another way to cover the second layer in Figure 3 is to have Innovation Centers which serves to fill holes in the EE like catapult centres, however, with a slightly different approach. These centres are more centralized and cover the need for physical infrastructure and expertise in-house (CSIR, 2022), by providing tailored services to

the startup that is using their services. These centers are facilitators of equipment and expertise in the same way that the catapult centers are, but they do own and operate the equipment themselves.

Co-Creation

An interesting factor to catapults and the innovation centres, is the co-creation between different actors within the eco system. Co-creation is the process of collaborating towards the same goal with the spirit of sharing and cooperating as key components (Russo-Spena & Mele, 2016a). This interpretation of the co-creation process cannot be completed by a single actor and enhances individual contribution towards the project (Russo-Spena & Mele, 2016a).

3 Research design and methodology

In this chapter we explain our choices of research design and methodology for the project. The thesis is an exploratory multiple case study with a comparative component that has shaped the project. Since it is an exploratory study a thematic approach to the analysis is also chosen to allow new influxes of ideas and themes to come in throughout the analysis process.

3.1 Research design

In this master's thesis we want to explore how innovation facilitators in Bergen and Gauteng utilize B2B sharing economy models to assist startups in the early phases of development. We chose an explorative approach to research since especially the B2B sharing economy is a new phenomenon, and little research exist on the topic. To further investigate the issue, we apply a qualitative methodology with semi-structured interviews which allows us to be more flexible and openminded than with a quantitative methodology (Easterby-Smith et al., 2018). We chose a case study methodology as the overall research design to get a deeper insight, and to explore the "How and why" questions (Yin, 2018) to explore the B2B sharing economy, developing theoretical knowledge enhancing our understanding of the B2B sharing economy.

3.1.1 Comparative Case Study

We chose a case study research method. Yin has identified a twofold definition of case studies as a research method. The first definition is based on the level of analysis; if the case can be examined in detail (rich data) and within its true context, and especially when the borders between phenomenon and context are not obvious. When doing a case study, the focus should be on the case in its real-world context, which provides credibility to the context (Yin, 2018).

The second definition handles the use of findings and how it is likely to get distracted by points of interest when searching for solid datapoints. Of which one result should benefit from previous research to guide data collection, analysis, and design. And the other result relies on multiple sources of evidence, with the results combined in a triangulating fashion (Yin, 2018). Moreover, these definitions speak to the benefits how

having multiple sources of data to build a sturdier case and in return increase the credibility of the thesis. According to Yin, it is recommended to choose the case study approach, if the following components are fulfilled (Yin, 2018).

- The phenomenon is directly observable
- Human behavior is unaffected by the researchers
- It is possible to interview people affected by the phenomenon
- The phenomenon exists today

Considering the different levels of this case study, we argue that an embedded case study is a reasonable approach. In this kind of case design, we investigate subunits in the multiple case study. The main two cases are two B2B Sharing Economy concepts/models, operating in the Bergen region in Norway and in the Gauteng region in South Africa which contain Pretoria and Johannesburg. Each case has facilities/infrastructure for innovation with an associated facilitator organization. We also investigate startups using the facilities and partners who provide infrastructure and services, as subunits. Within these facilities, we investigate (In the Bergen region) two subunits: startups and “partners.” Partners refers to the companies engaged by the innovation facilities to provide infrastructure and services to startups/SMEs. While in the Gauteng region, the facilitator takes a more comprehensive role, with no formal partners associated.

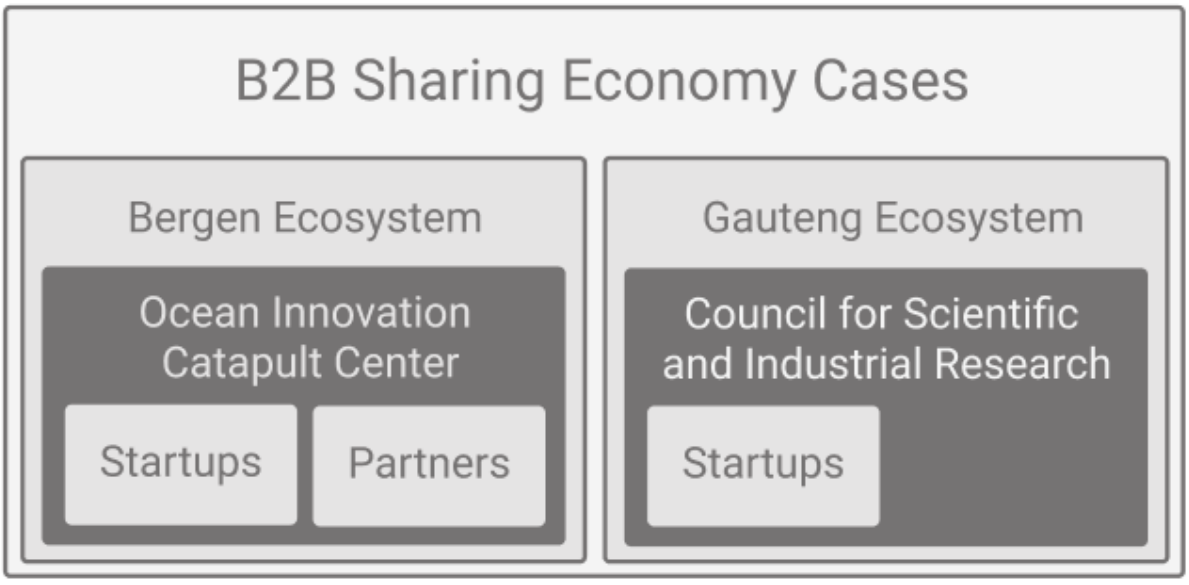

*Figure 4 - Case Study design overview inspired from (*Yin, 2018*)*

3.2 Criteria for validity and reliability of case study research

To be able to determine the quality of our research design there are four logical tests that can be used to validate the design and determine that it has been done the right way (Yin, 2018). These criteria or test is called “concept validity,” internal validity”, “external validity” and “reliability”. These sets of tests work on case studies and are therefore applied in this thesis to confirm that the right research design is used.

3.2.1 Concept validity

Concept validity is about identifying the most correct utilization of the concepts the researchers have chosen for the study. The best way of ensuring a good validity is to do thorough research on the topics and use several sources to ensure a good theoretical and conceptual groundwork for the thesis. Together with having the right amount of both open and in-depth questions while interviewing key-informants to build a solid case.

We studied several scientific articles about the topics we were interested in and had discussions with the PhD-student to ensure the concept validity and shaped our questions accordingly. We had to alter parts of our questions for the interviews we had in South Africa to fit into the different context, but this was only minor changes due to tips we got from our South African PhD-student.

3.2.2 Internal validity

Internal validity concerns explanatory case studies and explore the cause-and-effect and how it relates to each other, for example how event x led to event y and caused z. One cannot be certain if x or y alone would lead to z, or if it were the combination of the two events. If someone were to claim that catapult centers help all startups in early phase development, they would have to explain in detail, how the catapult helped and what events led to the result of a successful startup to build internal validity. Internal validity is most important in uncharted and scientific experiments, where the goal is to focus on a few specific variables, which is challenging in intangible studies (Yin, 2018). To build internal validity, we have explored the sharing economy phenomenon in two

countries with one case in each country. This method has helped us find patterns, similarities, and differences between the two countries.

3.2.3 External validity

External validity speaks to the case studies' results, and whether they are generalizable towards other empirical contexts and cases. If someone were to say that findings from their study are generalizable to another context, they assume analytic generalization. It is easier to achieve analytic generalization if the research question involves "how" and "why" questions, which in our case, fits the main research question: How can a B2B sharing economy model aid startups in the early phase of technology development and market launch (Yin, 2018).

3.2.4 Reliability

Reliability speaks to the probability of studies being replicated with the same procedure and methods and achieve the same results. Secondly, if someone wants to reproduce equivalent results, one must use the same case under the same conditions as the case study in question, in other words, one must replicate the exact case all over again. The goal of reliability is to minimize the risk of mistakes and bias, which is challenging for case studies. When stepping into the role of a scientist it is important to be transparent in the research process (Yin, 2018).

If someone decided to replicate our research, the data would vary based on the interviewees included and the circumstances they are done in. But if they followed our methodology and use the same criteria for choosing interviewees, the results could be repeatable. To an extent, we may argue our results could be generalized towards other catapults and startups that fit in the same categories when it comes to situation, technology, size, and industry.

3.3 Methodology and data collection

We aim to investigate the B2B sharing economy model in two contexts: Bergen, Norway and Gauteng, South Africa. The selected sharing economy model is embedded in the entrepreneurial ecosystem in the Bergen region and the Gauteng

region, respectively. The research is conducted within the frame of the INTPART project: Developing entrepreneurial mind-sets across cultures, which is a collaboration between five partners: HVL, NMBU, NU, SUN and UP. Furthermore, the master thesis is conducted in close collaboration with Kelvin Ivankovic's PhD project. The data collection happened with both physical and digital interviews in Bergen, and physical interviews in Gauteng.

To conduct a comparative master thesis involved many practical challenges, e.g., the sampling strategy and the collection of data in two countries. It was a challenge to find similar B2B Sharing Economy models/concepts in the two countries, which we could compare. Moreover, it was time and resource demanding to collect data in two countries in 2-3 months, both to identify relevant subunits and to access informants. Fortunately, our master thesis was strongly linked to a PhD-project, and all interviews were conducted in collaboration with Kelvin Ivankovic who worked rigorously to find a similar cases and knowledgeable informants, especially in the Gauteng area.

We based our interview guide on the theory presented in earlier chapters, (2) and built up by a few key themes that were included in both interview guides. It was necessary to develop interview guides that were tailored to each kind of actor in the ecosystem, one for facilitators and partners, and one for startups. The interview guide was first developed in Norwegian, and later translated and adapted to English for the South African interviews.

3.3.1 Qualitative interviews

Semi-structured interviews are preferred because it makes the interview more seamless and encourages the interviewee to be part of a conversation (Easterby-Smith et al., 2018). In return, this enabled us to get deep insight into what the companies believe are the most important aspects, and at the same time keep the order of the interview. While choosing semi-structured qualitative interviews the interviewer should work out a guide that lays a framework for the interview, while at the same time enables the interviewee to speak their mind about what they think is important. Other questions for the interviewer to think about is how questions are asked, if he wants to use questions like "why" which is a laddering up approach, or a laddering down approach with questions like "Can you give an example of…?"

(Easterby-Smith et al., 2018). The development of the interview guide will be based on relevant literature.

To understand the functioning of B2B sharing economy models, we conducted interviews with several key informants that represent the facilitators, partners, and startup companies to especially see how the B2B sharing economy model can affect the early phase of technology development and market launch among startups. We included representatives from Ocean Innovation Catapult Centre (the Catapult), The Council for Scientific and Industrial Research (CSIR) and partners engaged in the Catapult. Additionally, we interviewed startups who had been in contact with the Catapult and CSIR to get their point of view. Thus, we use nine interviews as primary data in this thesis. Although, the circumstances vary across the two contexts, the goal has been to get key informants with similar roles, positions, and responsibilities to build a good foundation for the comparative aspect of the thesis. Below, we show a summary of the structure and key themes of the interview guides.

Table 1 Key themes - Interview guide

Facilitators	**Startup**
Main topics	Main topics
How they interact with their local EE and what they offer to startups and SMEs	Why they chose to use the facilitators infrastructure
Incentives for facilitators and partners	What resources do they get from the facilitators, knowledge, and equipment etc.?
Collaboration, co-creation and sharing of resources with and between startups	Collaboration and co-creation with the facilitator and other startups
Challenges with the model and their plan	Will they use the infrastructure later when developing new products? Returning.

While there are reasons to use the interview techniques mentioned it has been important to take notice of the issues of using qualitative interview methods such as: It requires the interviewee to take time out of their day and fully commit to the process for an hour or two. We as interviewers had to be aware of where the interview is heading, the direction and theme, and if the information received is relevant or not. Nevertheless, the in-depth approach was important to be able to understand what they

mean and to try to go into their shoes to identify the knowledge that is already there and previous experiences, and at the same time capture the emotions the interviewee has whilst talking about different themes. We were aware of the potential challenges of conducting an interview, and in the end the data collection involved interesting conversations, perceptions, arguments, and opinions.

3.3.2 Sample, sample group and selection criteria

The thesis aims to understand the functioning of the B2B sharing economy and include facilitators, partners, and startups to gain a 'complete' perspective. Yet, within the time and resource constraints of a master thesis, it was difficult to get a 'complete' view, especially since the thesis included data collection in both Bergen and the Gauteng area. Yet, the multiple case study aims to gain some knowledge of two B2B sharing economy cases: one in Bergen and one in Gauteng. See below, the actors and key informants and informants used in Table 2. In the further analysis (and quotes), we refer to these as described in the table.

Table 2 List of interviews with respective representative code

Facilitators	
Facilitator NO-a	Catapult Administration OINC - Bergen
Facilitator SA-a	CSIR PPF - Gauteng
Facilitator SA-b	CSIR BIDC - Gauteng
Partners	
Partner NO-a	Partner RASLab - Bergen
Partner NO-b	Partner Inventas - Bergen
Entrepreneurial Ecosystem and Network	
Ecosystem Informant SA	Entrepreneurial ecosystem and network - Gauteng
Startups	
Startup NO-a	Startup ShrimpVision - Bergen
Startup NO-b	Startup Pure Lobster - Bergen
Startup SA	Startups Additive Solutions - Gauteng

The analysis is built on interviews with Facilitators, Partners, and Startups. As a supplying source, we interviewed a key informant to better understand the ecosystem and networks that exist in Gauteng, South Africa. The Norwegian facilitator is represented by the Catapult and from South Africa it is represented by different branches of the CSIR (3.6.4).

Combined with looking at the startups and facilitators it has been vital to investigate the partners that enables the facilitators to offer good services, both with regards to physical infrastructure and softer skills such as knowledge providing and development services. The Catapult inhabits multiple advisers that already contribute to the knowledge providing aspect of the sharing economy and is a useful resource from the established business's point of view.

The findings from the interviews with startups will be related to what they experience as barriers to entry and what resources they think would be beneficial to overcome barriers and the liability of newness. When it comes to the partners of the Catapult, we asked: What they are currently doing to aid and advice startups, and how they see this kind of services and infrastructure evolving in the future.

3.4 Sources of error in the methodology

When writing a thesis, it is important to be transparent with possible sources of error or bias. We've both been involved in a startup environment before and know firsthand how rough the first couple of years can be for a young company, which could result in some bias towards the startups. Additionally, since this is a comparative thesis, the population selected for one country does not directly translate to the other. The two countries selected for this thesis differ in many aspects important for a B2B sharing economy to function and thrive. Yet, we have tried to find similar cases in B2B sharing economy across the two countries. In the analysis we search for differences and similarities, trying to identify contextual explanatory factors, and think the comparative aspect is enriching for the research.

3.5 Data processing and analysis

Before we started to analyze our data, we transcribed the interviews, the Norwegian ones were transcribed by hand, and the English ones were transcribed using a digital program called Otter.io. After the data had been transformed from voice recordings to text, it was now possible to start to systemize the data. The way we put our data into a system was to code all our primary data with the software NVivo, this made it easier to categorize and organize the data. Coding in qualitative methodology is done by determining a set of key themes that respond to the research question based on key words from literature and a subset of codes that are used to further systemize the information (Easterby-Smith et al., 2018 p.239-240).

3.5.1 Structure of the analysis – Thematic analysis

While analyzing qualitative data the goal was to obtain the various perspectives related to the research questions. Since the primary data gathered is interviews, we chose a thematic analysis approach. This approach is the most commonly used in these types of studies. Our analysis is mainly based on the analysis techniques from (Braun & Clarke, 2006) and describes that the thematic analysis is used to identify, analyze, and report patterns in a set of data. The exploratory nature of the research made us choose this method of analysis, and many new insights that we had not considered before, emerged in the process and it was easy to make new coding themes to better understand the essence of the data.

We chose to do a total coding of all the transcribed documents and ended up with thirteen main codes and twenty-seven sub-codes. The reason we chose to use so many subsets of codes was to distinguish between the type of interviewees, and to find the right codes more easily. Furthermore, we partitioned our analysis into two main parts:B2B Sharing Economy model in Bergen *B2B Sharing Economy model in Bergen* and *B2B Sharing Economy model in Gauteng*. The division was done to be able to analyze the data in both cases separately without interfering with each other, and this makes the analysis easier to follow and ensures that we analyze the same model in each case. After all the relevant data is analyzed, we could start to compare the information and discuss the similarities, differences, pros, and cons within each case.

The analysis is structured into a few key themes forming the most vital information from the facilitator's perspective, partners perspective, startups perspective and for the general ecosystem perspective. This was done to get a logical and systematic analysis to both make it easier to understand for the reader and to ensure that there is a balanced amount of data from each of the perspectives.

3.6 Context and description of business cases

The focus in this thesis has been to investigate important actors in the B2B Sharing Economy in Bergen and Gauteng.

3.6.1 Ocean Innovation Norwegian Catapult Centre

Norwegian Catapult is a network of five catapult centers that offers facilitation, equipment, guidance, and networks to innovative companies, so they can develop prototypes, test, simulate and visualize their products. The catapult centers aims to lower the barriers for these companies by accelerating the best ideas and lowering the risk for entrepreneurs with ideas that has great potential (Katapult, 2022). It is a nation-wide initiative with specialized centers shattered across Norway.

Ocean Innovation Norwegian Catapult Centre (the Catapult) was founded in 2018 after the SIVA conference in June of the same year and is owned by Vestlandets Innovasjonsselskap (VIS), GCE Ocean Technology, NCE Seafood Innovation Cluster, Additech AS and Marineholmen RASLAB AS. The organization is funded by SIVA and aims to be an organization driven by the needs of its customers and assists startup companies in the development, testing, and verification processes. Additionally, SIVA provides startups with a discount for most of the catapult's services (Norwegian-Catapult-Centre, 2021).

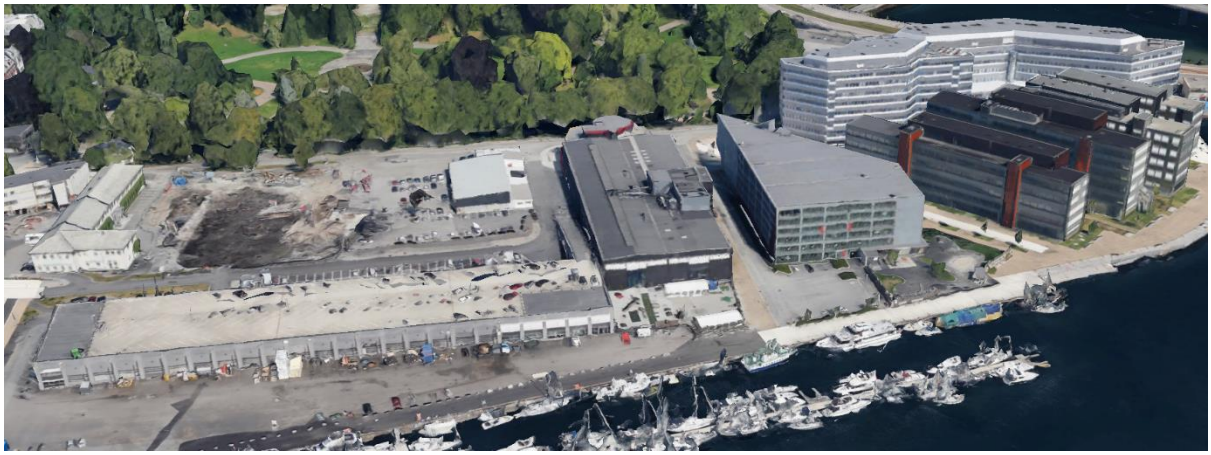

Figure 5 Birds-eye view Marineholmen Forskningspark (earth.google.com)

The Catapult is the facility that has been studied in this thesis and is located at Marineholmen Forskningspark shown in Figure 5. They facilitate for design, prototyping and verification aimed at various industries, such as maritime, subsea and the marine industry (Norwegian-Catapult-Centre, 2021). In addition to the testing facilities, they offer short courses, training, experience and competence from skilled experts in the field, together with companies that provide guidance and professional production of models and prototypes (Norwegian-Catapult-Centre, 2021). This catapult center is part of the infrastructure of the GCE Ocean Technology cluster that is a world leading innovation cluster with over 110 members (GCE-Ocaen-Technology, 2021). The catapult can be categorized as a tech catapult (Kerry & Danson, 2016). It host expensive technical equipment for testing, and are therefore a facility that requires high investments and maintenance cost. Public funding and industrial partners cover the expenses of the Catapult fifty-fifty.

3.6.2 Inventas – Knowledge sharing partner

Inventas is one of Norway's largest product development companies with 130 experts in the field of design and technology. Their work with everything from commercializing of research, big tech, industrial companies, and startups. They offer both complete development assignments and provide specialists in various fields. In the Catapult they are a support system that offers heavy competence for startup companies that lack parts of the competence base they need (Norwegian-Catapult-Centre, 2021).

3.6.3 RASLab – Equipment sharing partner

RASLab is one of the owners of the Catapult and specializes in recycling aquaculture system shortened to RAS. The company offers RAS infrastructure, equipment and knowledge to companies who want to test equipment, new species and new technologies that are compatible with these systems. They are owned by the University of Bergen, ILAB, NORCE and Marineholmen Forskningspark. Their goal is to offer the best research and innovation facilities at the best price. As a partner and owner in the Catapult they offer startups access to these facilities and offers them guidance (RASLab, 2022).

3.6.4 The Council for Scientific and Industrial Research (CSIR)

The CSIR was established in 1945 by the Parliament of the Union of South Africa and is an entity of the Department of Science and Innovation. The CSIR's main role is to support entrepreneurs in public and private sectors through assisted research, product validation and development that aligns with the country's priorities (CSIR, 2022). Together with providing equipment and expertise to universities in the region.

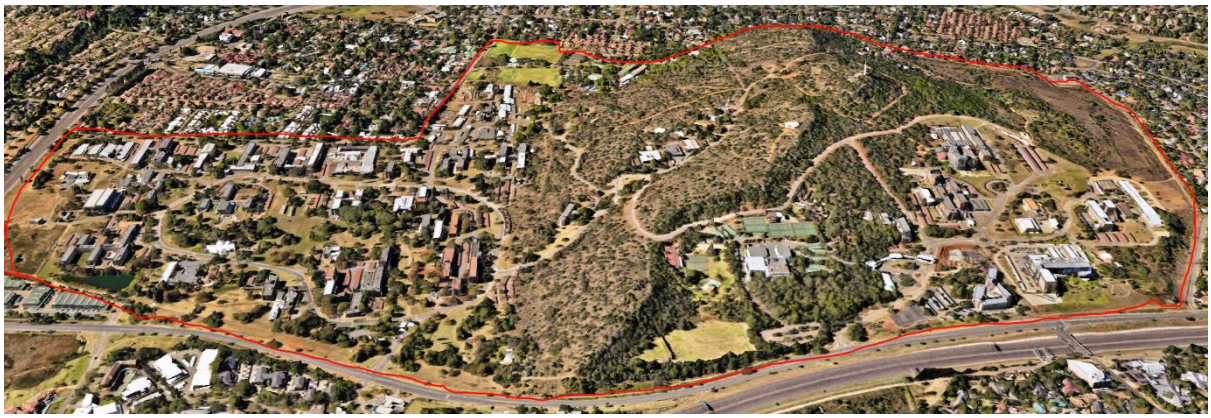

Figure 6 Birds-eye view of the CSIR campus (eart.google.com)

Encircled in red in Figure 6 is the CSIRs Pretoria campus, the birds-eye view provides an indication on the scale of the innovation infrastructure they provide, and perspective on the centralized approach they have chosen. The CSIR in Gauteng is comprised of forty-eight buildings belonging to different subunits of research centers and labs that are located on the same campus. The geographic proximity between research centers should encourage collaboration on fields that can be matched up with each other.

4 B2B Sharing Economy model in Bergen

Our empirical analysis is divided into two main parts containing subcategories with equivalent key factors to answer the research questions. This has been done to separate the findings from each case and therefore make it clearer and easier to follow. To do this, a lengthy process of transcribing interviews, discussing observations, and categorizing data has been a focal point for this analysis (3.5.1).

In the ecosystem in Bergen, Norway there is a prevalent network of industry clusters and incubators that comes on top of this ecosystem. The clusters have shifted the landscape and there is now an embedded culture of collaboration and high trust between companies that have ties to these industry clusters. Several startups are connected to these industry clusters to gain both social capital and to get valuable knowledge. Furthermore, to sustain these startups, it is important to ensure their survival through the critical early phase, therefore incubator infrastructure has been integrated in many regions to add valuable intangible resources like management, lawyers, networks, and other knowledge-based assets (Barbero et al., 2014).

In addition to incubators, regions have invested in physical asset-based infrastructure called catapult centers to strengthen the entrepreneurial ecosystem, and ensure startups get access to the equipment they need (Kerry & Danson, 2016). Catapults aim to give startups and SMEs the opportunities to test technologies with heavy and expensive equipment that is usually only available to big companies with a sturdier financial capacity (Kerry & Danson, 2016) to reduce the risk of failure at more sustainable level. These catapult programs are closely linked to government and industry interests and are usually funded by institutions like SIVA. There are certain criteria that have to be in place for the catapult to invest in equipment, these factors are different for each facilitator and each funder (Kerry & Danson, 2016).

4.1 Facilitators perspective

The facilitator in the Norwegian context is the Catapult. It is an organization that facilitates and promotes cooperation between partner companies and startups that need either specialized competences or expensive infrastructure. Startups often lack resources in R&D, marketing and finance and need assistance in one or all these areas.

> *[…] katapulten er ett offentlig virkemiddel, det er sorteres under nærings- og fiskeridepartementet. Med Siva som er programoperatør, det betyr på oppdrag fra nærings- og fiskeridepartementet er det de som skal forvalter de pengene som skal til og rigger det som er hele katapultsentrene i Norge. Som er det samme organet som forvalter inkubatorprogrammene og næringshageprogrammene rundt omkring i Norge. (*FacilitatorNO-a, 2022*)*

The Catapult follows a facilitation model recruiting startups residing in incubators like VIS with a developed business model and some experience with their business segment. These incubators are also funded by SIVA, which makes a good connection with the Norwegian Catapult. While the incubators are more focused on business growth and the underlying business models of a startup, the catapult can provide more technical and practical solutions for the startup company. The Catapult then use its extensive network of partners and owners within different areas of expertise to aid the startup with the challenges they face. Furthermore, they provide the startups with grants and financial aid to be able to make use of the test facilities.

> *Siva har ett type fond som, statrups som er med i næringshage eller en inkubator kan søke på dette fondet for å bruke ett katapultsenteret. Det er ett mobiliseringsprosjekt fra Siva for staups og små eslekaper. […] Inkubatorer har lov å gi 75% støtte intensitet, så da får de en pott med penger og så må de inn med 25% selv. (*FacilitatorNO-a, 2022*)*

The reason for the maximum limit of 75% support is to uphold competition rules and make the company have a stake in the investment, which is a motivating factor. The rest of the money must come from other investors or liquid funds the company have

at its disposal. SIVA also offers funding schemes for more established companies after they have realized the first product.

4.1.1 Equipment sharing

One of the Catapults roles in the regional entrepreneurial ecosystem is to connect startups/SMEs and the Catapults partners and invest in local infrastructures. The main idea behind the Catapult is to make available technology and testing infrastructure in the region. The Catapult offers technical equipment through, its network of partners who already possess relevant equipment and infrastructure. Sometimes the Catapult also invests in infrastructure together with a partner to make available equipment and infrastructure needed by startups and SMEs. As one of the key informants puts it:

> *[…] hele ideen her er at […] de store selskapene kan bygge opp sin egen testkapasitet og sin egen infrastruktur for testing og prototyping men det kan ikke de [startups]. De har ikke råd til å investere i sin egen infrastruktur for testing og prototyping. […] katapulten går da sammen med industrien og investerer i en testkapasitet for eksempel som skal da tilgjengeliggjøres for små og mellomstore selskaper. Det er på en måte betingelsen for når vi [OINC] går inn og investerer i fysisk infrastruktur. (*FacilitatorNO-a, 2022*)*

So, when investing in infrastructure in larger companies the Catapult requires the partner to offer parts of the infrastructure to customers of the Catapult, mainly startups and SMEs. This is to ensure availability and access to resource constrained startups and SMEs. Another requirement set by OINC is to invest in infrastructure and equipment promoting and sustaining sustainable and environmentally friendly technology and products. Hence, the Catapults are meant to be a major driver to accelerate and ensure the green shift.

> *Det [Industry] må være politisk forankret ved alle plan, dette er noe Norge skal satse på, og så må det være et sannsynlig behov. Testbehov, verifiseringsbehov eller prototypebehov ute i markedet også. Det at dette er noe som noen faktisk har bruk for og at det er vanskelig for folk å investere i dette selv, alle de boksene burde være huket av. […] Og så*

> *må det være grønt, det er også et ufravikelig krav. (*FacilitatorNO-a, 2022*)*

Hence, new investments in infrastructure need to be politically backed, and accepted as promising new green industries. The Norwegian government need to see these as future industries/technologies for the region, having both an existing and future demand for testing, verification, and prototyping capabilities in the market. In addition, the barriers to entering the market must be high, in other words too expensive for a startup to cashflow the development by them self, which correlates with the capital requirements component of barriers to entry (Porter, 1979).

4.1.2 Sharing of knowledge and networks

Besides the infrastructure and equipment, the Catapult and its partners do also provide knowledge/competence and networks to startups. Startups' lack of formal and informal networks also referred to as "social capital" represent key barriers and their main liability of newness (Jones et al., 2013), and the Catapult can help startups with connecting to their network and to the wider entrepreneurial ecosystem. But first the Catapult must do some work to make the startup ready so they can be considered 'less risky' for Catapult partners and the wider network, as FacilitatorNO-a makes out:

> *Vi bruker mye tid på å rigge prosjektet for dem. […] Så den kunnskapen begynner vi å bli gode på in house. […] Vi må tygge casen først, før vi går til partnere, så det er litt sånn ferdigtygget når det kommer til en av samarbeidspartnerne våre. Men det er ikke helt ferdigtygget for å si det sånn, så det å […] se etter hvilken rekkefølge ting bør skje i, hva bør du gripe fatt i først og hva er det viktig å tegne opp. Altså utviklingsløpet, de ulike stegene i utviklingsløpet, det hjelper vi med. (*FacilitatorNO-a, 2022*)*

After the catapult has figured out which partner is the most fitting based on the startups needs, an agreement is drawn, and the work can begin within certain boundaries. Since the startup lacks financial resources and receives up to 75 percent (4.1) of the capital needed to pay the partner, there will usually be worked out in advance how much money they can spend, and how many hours the partner can use on the startup. However, even though there are limits on how extensive the collaboration between the

knowledge providers and the startup company can be, there is little doubt that enabling this kind of service is a good one for startups in the early technology development and testing phase.

> *Vi tilgjengeliggjør også den type kompetanse som man trenger, […] Det går på alt fra konseptutvikling og industridesign. […] for eksempel sånn som Investas, som vi har som en partner. De er jo god på design og industridesign. De har ikke noe fysisk infrastruktur, men de er allikevel ett støttesystem som er veldig viktig i det løpet her. (*FacilitatorNO-a, 2022*)*

The knowledge providing and services that partners offer the startups are key for the Catapult and it is all about the collaboration between the Catapult and these partners that makes the system work. The Catapult enables the connections between startups and partners, and the financial resource funds equally make these collaborations possible,

4.1.3 Incentives and motivation for the Catapult

The Catapults incentives are governed by both the owners and the funders. Since the catapult is funded by SIVA and is part of a government-funded program, it has goals and responsibilities embedded in its core. The main purpose of the catapult is to accelerate innovation in the entrepreneurial ecosystem, help drive technological development and to be in the forefront of innovation/technology. Especially in the new green industries that Norway will rely on in the future.

> *Vi vet at det [Olje] kommer til å ta slutt, Og vi vet at vi må begynne med omstillingen av denne industrien. Da er det sånn at vi har ett behov for alle de nye løsningene som kommer, alle de nye næringene og industrien som skal bygges. Det kreves nyskapning, det kreve nytekning. Det krever en smartere måte å gjøre ting på, og alt må gjøres på en grønn og bærekraftig måte. Det er litt av oppdraget vårt, vi skal hjelpe de som har disse ideene, de som kan skape de nye næringene, skape de nye eksportmulighetene og skape de nye arbeidsplassene. På en grønn måte. Det er oppdraget vårt (*FacilitatorNO-a, 2022*).*

Hence, the underlying motivation for OINC is to be a major driver for stimulating the green shift and to make Norway less dependent on the petroleum industry. This motivation reflects the structure of the ownership, including GCE Ocean Technology and NCE Seafood together with incubator networks (3.6.1), and hence both public funding and private industry.

4.2 Partners perspective– Inventas and RASLab

Partners in the Catapult system are making the OINC work, the partners are the service providers that supply startups with valuable knowledge, equipment, and networks. The Catapult's role is both being a customer to and an investor in the partner companies, in the sense that the Catapult pays these companies to offer services to startups. At the same time, the catapult invests capital into chosen partners to build up infrastructure to meet the needs of those who use the catapult, startups, and SMEs.

> *[…] Når de miljøene [Startups] har vært i kontakt med katapulten så har de allerede vært igjennom en inkubator og har klart å definere behovet sitt ganske tydelig så det er ganske konkret når det kommer til oss da. Det er en stor fordel sett fra vår side. (*PartnerNO-b, 2022*)*

They value the fact that startups already are screened and tested by the Catapult before they start working with them. This screening functions as a stamp of approval for the partner, meaning the idea and business plan are developed, lowering the risks for the innovation/technology project between the partners and startups. Furthermore, the startups recruited by the catapult are usually more aware of their needs and usually have more insight into how those needs can be taken care of.

The relationship between facilitator and partners is also an important aspect seen in relation to the wider entrepreneurial ecosystem in the Bergen region. The Catapult partners are high tech companies that offer a broad range of expertise and specialized equipment, ranging from prototyping, testing, and verification capabilities. More, the partners valued the Catapult's aim of being market driven, i.e., responding to the user groups needs and wants, and for adopting a decentralized model, enabling a competition driven development of new technology with partners that understand the needs of the startup.

> *We [partners and startups] speak the same language. That is one of the noticeable differences. That we can think about things from a business point of view […] it feels to me like it is quite a dynamic ecosystem […] you start to look at the bigger picture and how you connected the Catapult to big international conglomerates, also where the funding is coming from. And it is quite dynamic and a lot of actors within these ecosystems. (*PartnerNO-a, 2022*)*

4.2.1 Sharing of knowledge & networks

Especially Inventas, highlight the knowledge sharing aspect in the relations with customers. Inventas is a company specializing in aiding businesses of all sizes in product development and design. They do not work like a staffing agency, so they do not "rent" out their employees to other businesses to work on a product. Instead, they take on the problem provided by a customer, and solve them in-house with their own team, in close dialogue and collaboration with the customer, sometimes also bringing in knowledge from their network.

> *[…] Ofte hvis du skal lage en prototype av et eller annet […] så hvis ikke gründeren eller selskapet som skal lage disse tingene eller har kapasitet til det, så er det veldig ofte vi kobler dem mot noen som kan støpe noe eller maskinere noe eller sette dette sammen eller teste det. Da prøver vi å finne [noen] i vårt nettverk vi tror kan passe godt til dette og koble gjerne de sammen. (*PartnerNO-b, 2022*)*

The partner links customers with partners in their network to prototype, cast and design a product. Inventas works 'like a smaller version of the Catapult', in the sense that they have a network of partners outside of the Catapult that customers can use, providing them with social capital (0). This is contributing to lowering the entry barriers for startups, as the Catapult partner grants them access to the network surrounding the Catapult and its partners.

4.2.2 Equipment sharing

The company chosen to represent the equipment sharing aspect of the sharing economy in Norway, is RASLab. They rent out water tanks with RAS technology, designed for fish farming, to businesses of all sizes, as well as doing contract research. They have been in a partnership with the catapult since the very beginning and are currently reserving 25% of their facilities to SME's and startups. Additionally, they have tanks for the university to use for teaching and masters' projects.

> *We are one of the cornerstones of the catapult. So, we have an obligation under the terms of that contract to make available come 25% of our facility for access to SMEs. Not a problem, because that is most of our business. So, it is not really something we think much about. (*PartnerNO-a, 2022*)*

The partner claims that they rent out 25% of their facilities to SMEs, as they are contracted to do by the catapult. And continues to say that most of their business comes from SMEs, so the contract did not have much of an impact on their current strategy. The partner refers to SMEs as medium-sized companies, and according to the informants from the startup's point of view, they are not as well represented at RASLab. A contributing factor to this is that SMEs have the financial resources to use the facilities and startups do not.

4.2.3 Incentive and motivation

The incentive for partners is an interesting topic. Why would a business go out of its way to help startups? In the case of the catapult, it is a part of their business plan, they charge the startups for a service that they provide, and it is business as usual. Which means that startups are the target consumer for their business. On the other hand, partners do not necessarily rely on startups and SMEs to make a profit, in some cases it might even be less lucrative to work with startups than with SME's and more established businesses. So why would they risk lowering their income to help startups?

> *Da gjør man jo det til et element av den utviklingen, og det kan jo være veldig faglig interessant for den ene som blir satt på det prosjektet […] Det kan være større risiko ved å gjøre det slik, da all utvikling er risikosport da det tar nye veier underveis. Det setter jo også krav til oss også når vi setter inn flere ressurser så er det noe høyere risiko og mer krevende, men der er jo mer inspirerende og givende med slike prosjekter. (*PartnerNO-b, 2022*)*

From a partner's point of view, working with startups could be risky and is demanding work, but Partner NO-b names a few factors that make the collaboration with startups valuable: First of all, if the startup only requires an element of what the partner has to offer, the employee set to work on that element really gets to do a deep dive into the startups situation, which in turn could lead to professional interest. Secondly, to work with startups is demanding work and high risk, but to see the evolution and progress of a startup, bringing them to the next stage was very inspiring and rewarding for the partners. Working with startups is clearly something the partner is passionate about, giving them the chance to develop early phase products, and bringing them to market was fulfilling for partners and startups alike.

4.3 Startups perspective – PureLobster and Shrimp vision

The startups chosen for this thesis have both been in contact with the Catapult and are currently situated at the VIS Incubator, the co-creation space for entrepreneurs. StartupNO-a heard of the catapult center after joining a program for entrepreneurs called Gründer Academy which is facilitated by VIS. After joining this program, they met with the CEO of OINC and decided to explore options within the catapult. One of the most fitting partners for both startups was RASLab, a company that specializes in consulting and renting out equipment for fish farming, but due to financial barriers of it being too expensive and because it lacked one important component, the startups never used the equipment in RASLab. However, the relationship between the startups and RASLab continued to grow throughout the creation of their own equipment.

> *[…] Vi hadde et prosjekt med OINC her på huset, hvor det gikk egentlig på sånn hva skal vi si, forprosjektstudier på et mulig design av et rasanlegg da spesielt tilpasset reker. Så vi fikk benyttet oss av både kompetansen på RASLab og vi fikk benyttet oss av den designkunnskapen som var tilknyttet fra katapulten sin side representert gjennom Inventas. (*StartupNO-a, 2022*)*

In this quote, StartupNO-a explains how the combined efforts of the catapult's partners and themselves, produced tailored equipment that they can use to further develop their product. This is a great example where the sharing economy could not to provide the required equipment but prevailed by using the resources available and helped the startup with expertise through their network.

Another important factor that speaks to the startups experience at the catapult center, is the likelihood of a startup returning to further develop their product, or to work on new ideas.

> *Jeg tror det kunne vært spennende å bruke katapulten for forprosjekter igjen, det er alltid godt å få noen nye inne på det en holder på med, og jeg ser absolutt at i en videreutvikling av teknologien er aktuelt, når den kommersielle piloten er på plass (*StartupNO-a, 2022*)*

Hence, it is a clear advantage for startups to be assisted in their technology development by catapult consultants and experts in prototyping and simulation software, rather than working alone.

4.4 The co-creation process and the sharing of resources

The catapult offers a wide range of services for the startups, the most popular services are simulation, verification, prototyping, and 3D design. These services are usually cheaper, requires less involvement from the startup and gives them a verified product to present in negotiations with investors and stakeholders.

> *[…] De har kjørt gjennom simuleringene så er jo det en større verdi enn om jeg hadde gjort det selv, eller bare hadde fått noen tilfeldig andre til å gjøre det. De gir oss liksom stempelet deres igjen da, på at de har kjørt en simulering på dette systemet. (*StartupNO-b, 2022*)*

Accordingly, the process of testing and simulating a product provides a stamp of approval if it is done by industry experts. Having their product verified in a professional manner, lessens the strain of the liability of newness when entering a new market with a new technology or product. This does not directly solve one of the main problems listed in 0, like the social, human, or financial capital. But it might help startups get an investor in the early phase of development, which could attract co-investors in later phases, and as such reduce the liability of newness related to financial resources as well as capital requirements in barriers to entry (Porter, 1979) (Yang & Aldrich, 2017).

One challenge and major issue related to the Catapult, is the current pricing of equipment, specifically the equipment required for closed containment aquaculture technology. The closed containment aquaculture technology is currently at an experimental stage and is consequently rather expensive. This new technology aims to replace more traditional aquaculture farming technology seen as less sustainable today. For startups in the seafood industry and especially startups working with new species, the high prices at the Catapults partners prevent them from using the equipment, even with the discount provided by SIVA (4.1).

> *[…] Vi har vært i masse dialog med [katapultpartner] på starten, men det var for dyrt for oss. Selv med hjelp fra OINC og katapulten der, så selv med 70% rabatt, så ble det fortsatt [for høy pris] for et halvt år. For den prisen kan vi heller bygge vår egen lab isteden. (*StartupNO-b, 2022*)*

In consequence, the startup, built their own lab and equipment at a lower price than provided by the Catapult. The reason being both financial and technical, such as the previously mentioned price, but also the lack of a vital component for their product. However, the catapult cannot possibly cover all the specialized equipment for all startups, even with state funding and a sizable fee from the startups. Nevertheless, the startup received the help they needed from experts in OINC to build their own equipment, (4.4.1), with technical help from RASLab and support from the Catapult.

The Catapult equipment infrastructure was not a 'perfect' fit for the startup and can be explained by the experimental stage of the closed containment aquaculture technology and market.

> *[…] istedenfor å leie et lite kar i et halvt år så kjøpte vi vårt eget og solgte det videre til RASLab igjen, som et eksempel på at det burde være mulig for oppstartsselskaper til å bruke de tankene da (*StartupNO-b, 2022*).*

In addition to creating their own closed containment aquaculture tank, StartupNO-b sold their built equipment to the partner in the Catapult. This is a great example of a co-creation process between partners and startup, and how it can work both ways, which correlates with the theory about co-creation (Russo-Spena & Mele, 2016b)

In the existing research about the B2B sharing economy, most literature is focused on the sharing of resources between a facilitator, its partners, and startups (2.1.1). During the initial research, we thought that the collaboration between startups was a new concept and could become an interesting biproduct of the sharing economy. Even though startups possess limited resources without the help of catapult centers, they still acquire a fair share of knowledge regarding their field of expertise, entrepreneurship, and networking. Facilitating cross-startup collaboration could result in social interactions, the development of social capital and a sense of community among users. In the research, we wanted to learn how the different actors of the Catapult related to each other, shared resources, co-created and collaborated, and if facilitators and partners tried to facilitate collaboration between startups. However, the partners and startups have little experience with cross-startup collaboration but are familiar with the benefits.

> *[…] Det tar vi initiativ til om det passer seg, spesielt gjelder det bedrifter eller kunder som vi har blitt godt kjent med over tid, da mye av bakgrunnen for samarbeid er bygd på tillitt. Det er viktig at begge parter får noe igjen, og om en har et langsiktig perspektiv så er det ofte naturlig å diskutere sånne ting og koble ulike kunder sammen. (*PartnerNO-b, 2022*)*

Hence, partners (NO) proactively facilitated collaboration between startups if they observed relating technologies and mutual interests. But only with startup customers they had known and worked with for a long time, and that trust had been built, a precondition for collaboration especially in B2B relations/markets (Grondys, 2019). The partner actively attempts to link startups, or customers in this case, based on their time spent collaborating and of course when there was a mutual benefit for both parties. Furthermore, PartnerNO-b can see the value in cross-startup collaboration for the startup's respective project or merging technology and knowledge to improve one product.

4.4.1 Cooperation and sharing of recourses

In the Norwegian context, the sharing economy is highly reliant on knowledge sharing, at least according to this research. The questions asked were equally split between equipment and knowledge sharing in the interview guide, yet knowledge sharing covers 81% of the codes compared to its counterpart.

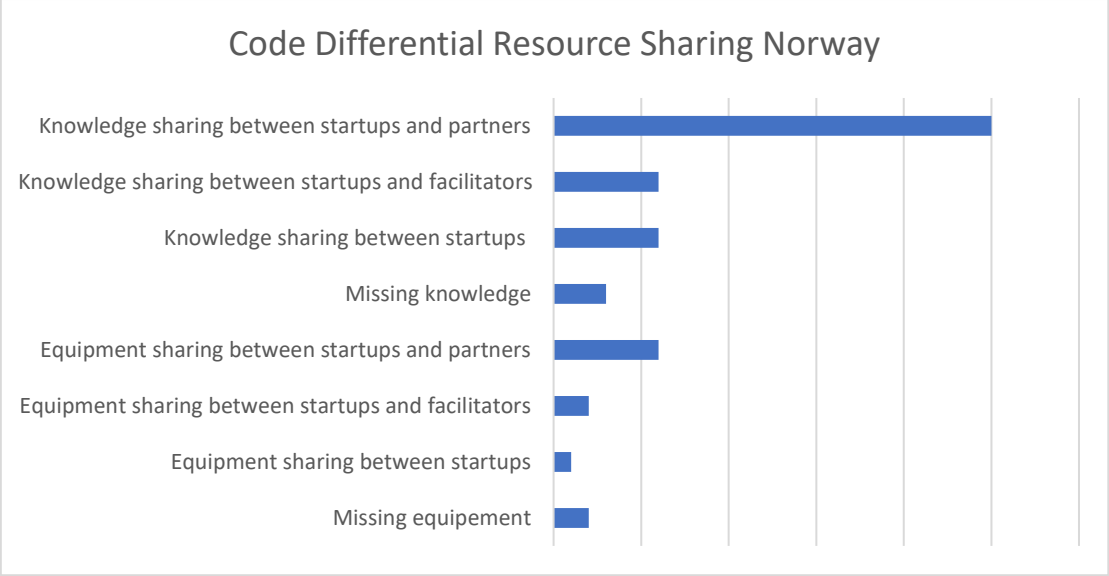

Figure 7 Code Differential Resource Sharing Norway

These numbers point to most resources being invested in knowledge sharing and less related to equipment sharing. This could relate to the sample group, and the fact that the startups interviewed for the data collection didn't use much of the Catapult's equipment.

4.4.2 The Catapults experience as a newcomer

The Catapult is in its infancy and is still in the making, this comes up several times through the interviews. There is a consensus that this newness is both good and bad. The good is that the organization is nimble and agile which means it can easily change how it operates, but on the other hand it is less well-known and recognized, compared to other actors in the entrepreneurial ecosystem. One startup explained that he used a lot of time before understanding the difference between the Catapult and a conventional incubator.

> *Jeg tror det tok et år før jeg skjønte forskjellen på katapult og VIS … Det er litt min feil for jeg har ikke søkt opp i det ... Men jeg trodde det hang sammen ganske lenge, så det var ikke noe sånn, start et selskap også går du til katapulten og så skjer det. Det er kanskje et halvt år siden eller 8 måneder siden jeg skjønte hva katapulten spesifikt gjør. (*StartupNO-b, 2022*)*

Being new and unknown among other actors in the wider entrepreneurial ecosystem could hinder the catapult of attracting the best startups as customers. However, the ecosystem is made up in such a way that the incubators and innovation hubs should make the first step to inform and direct startups to the services and infrastructure of the Catapult.

Furthermore, OINC has an ambition to utilize more of the dormant infrastructure in the Vestland region and with this, be able to offer more extensive services and technical infrastructure throughout the region. This ambition is challenging and will require time and resources to accomplish.

5 B2B Sharing Economy model in Gauteng

To get an overview of how the collaboration between the facilitators and startups in South Africa work we conducted interviews with several key informants from the facilitator's perspective, the startup perspective, and the entrepreneurial ecosystem perspective. One notable difference from the Norwegian case is the lack of partners in the South African model, because the facilitator usually takes more responsibility for the sharing of both infrastructure and knowledge. Therefore, the paragraphs about partners have been left out in this part of the analysis since the facilitators' perspective covers this role.

South Africa ranks lower on the Global Entrepreneurial Index than countries like Norway (Bate, 2021). Bate argues in the article about entrepreneurial ecosystems in BRICS club countries that the main reason South Africa scores lower is their general educational system for poorer families is not good enough (Bate, 2021). Combined with complicated bureaucracy, a lack of institutional trust (Cao & Shi, 2021) and unstable infrastructure, makes being an entrepreneur harder in an emerging economy.

These barriers for entrepreneurs in emerging economies are not an issue that an entrepreneur from a highly developed economy would face (Cao & Shi, 2021). These deficiencies affect every part of the EE and makes it a lot more difficult to foster entrepreneurship. On this note Bate argues that if the education system focused on fostering entrepreneurs, investing in public infrastructure like stable power grids, and if the government offered better entrepreneurial infrastructure, the country could enjoy more growth because of more entrepreneurial activity and a more competitive market (Bate, 2021).

It is important to note that in the Gauteng context there is a general term for young companies called "SMMEs" which refers to small, medium, and micro enterprises. And does not directly translate with SMEs used in the Bergen context.

5.1 Facilitator perspective

The facilitator in the South African context is the CSIR (3.6.4). CSIR's main role is to support entrepreneurs in public and private sectors through assisted research, product validation and development together with supporting educational institutions with research equipment. Furthermore, they provide financial support to small, medium, and micro enterprises (SMME's) that have the potential to be at the forefront of their local industry. In the South African context, the concept SMMEs is commonly used instead of startups, yet it includes small early-stage ventures with similar challenges as startups in Norway.

The CSIR is organized as a centralized platform where research labs and equipment are held in their own facilities. CSIR is built up of different centers and different departments that are in the same geographic area in Gauteng, this includes, but is not limited to both the Photonic Prototyping Lab (PPF), and Biomanufacturing Industry Development Centre (BIDC), which are the departments our team have been researching. These departments under the umbrella of the CSIR operate separately from one another and are each responsible for their own funding, except a 30% base grant that they get from the Department of Science and Innovation (CSIR, 2022) that is earmarked for specific objectives. "*The funding that we get from the government, we just want to ensure we use that money to drive the national agenda*" (FacilitatorSA-a, 2022). The rest of the funding comes from industry partners, contract work and local government that does not contain such strict regulations.

5.1.1 Equipment sharing

Equipment sharing from the CSIR can be divided into two main categories, one is the equipment that is made accessible to SMMEs, and the other is the equipment that is shared with educational and research facilitation such as universities and research centers. The main difference between these two practices is that whiles the universities borrow heavy duty machinery and equipment they get the machinery to their institute and have free access to it. Although some SMMEs have access to equipment, most of the prototyping, testing and validation happens in-house at the CSIR, either in direct collaboration between the parts, or entirely by the CSIR staff.

> *They can work with our people, but we do not give up space for a company just to come work on. The risk is too big, people can make mistakes that can affect all the employees of the CSIR. […] And we prefer to do the work on behalf of the people and transfer it to them. And the same goes for industry as well. Okay, we can go and work in industry, industry can come and work with us. We do that all the time (*FacilitatorSA-b, 2022*).*

To mitigate the risk of accidents and other safety concerns they do not directly give access to industry to freely use their labs and equipment. Since BIDC is working within biotechnology there is biological risk involved in it. However, from the PPFs standpoint, they had other concerns regarding giving direct access for companies to their equipment. They focused more on the technical difficulty of using the equipment and that most startups who reach out to them also need expertise. This principle also goes toward the universities that want to use the equipment. As stated by the key FacilitatorSA-a:

> *For instance, in this case, we think about that we have an hourly rate associated with it. So, they want to use additive manufacturing, we will purchase these million euros to some cost model based on expected utilization factor. And then I will use that same number to say okay, this University research project's potentially socio-economic impact with students involved publication, I will give you access for one week or two weeks. I will fund it and then for that money they get access to the equipment plus they get skilled operators (*FacilitatorSA-a, 2022*).*

In the same sense, this hourly rate that also is translated into research capital is also the price a startup must pay to be able to develop and test with this equipment. The way the startup pays for the service in case they get through the selection process by the CSIR investment board is to get a risk-free loan from the CSIR which the company pays back on a payment plan. The types of payment plan are usually a percentage of the profits when the company start to earn money. If the company never reach profit and goes bankrupt, the debt is forgotten. As FacilitatorSA-b states:

> *Our model is such that we support them [SMMEs], we cost a project, we put our resources onto it. The contract is such that after we have given them everything that they need to make products and commercialize. For five years, after they start selling products, or using a technology, they owe us a certain percentage on the sales of those products. If those products never make it, then we get nothing. If they do make it, then there is a small bit of royalty income that comes back for five years after (*FacilitatorSA-b, 2022*).*

The model the facilitator talks about function because the CSIR works as a non-profit and reinvest all the profits they get into the organization. It also makes it possible for them to get back earmarked funds that must go to small businesses, and thereby sustain itself by both giving out loans and being heavily invested in the success of the company they are doing services for. All this without taking any direct ownership of the companies.

5.1.2 Sharing of knowledge and networks

In the context of sharing knowledge, the facilitators in South Africa were keen to point out that their main strength is their expertise, with highly skilled specialist with years of both research- and industry experience. Thus, there is a consensus that one of the main services they bring to the table is knowledge and guidance in the technical sphere, but also expertise in how to run a business and help SMMEs evolve into fully functional businesses. As described by one key informant.

> *The intent of the program is to reduce the risk on investment by bridging that gap, giving the proof of principle, doing market samples, so that you can assess the market […]*
>
> *[…] We can transfer the knowledge and the skills that we have to the SMEs, it is sometimes interesting to see, good businesspeople that want to run a business, but they have no technical background, and they do not understand all the complications, challenges, and potential. We transfer that knowledge as well, when we work with SMMEs (*FacilitatorSA-b, 2022*).*

SMME's have different needs, some have a solid understanding of their own product, but need expertise about the market they are entering. Others have a great business mind and have found a void in the market, but do not possess the technical knowledge and capabilities required to bridge that gap on their own. Furthermore, the facilitator also helps with contract work and legal issues regarding products and licensing agreements, which is an expertise needed among inexperienced entrepreneurs.

> *We did a licensing over technology to a SMME [one person company] […] I am like, okay, just read, let me know if you are happy and sign. And then you have got the license to do this thing, transferring the technology. We had a meeting on teams, and I realized she got no clue of any of that contractually, she does not understand what the difference between an exclusive and a non-exclusive license is, so I assisted her with that. (*FacilitatorSA-b, 2022*)*

The quote exemplifies how the facilitators goes out of their way to support startups even though their main objective is to assist with the technology and product development. Based on the culture inside the BIDC this can be done if it does not compromise the rest of the business's day-to-day operation. This more comprehensive mentoring of the young businesses helps the startups to enhance their chances to successfully enter the market, become sustainable and stimulate the growth of SMMEs in the regional economy.

5.1.3 Incentive and motivation

The CSIR have several reasons to operate in the way they do, it is a huge organization with several research centers and clusters beneath its central structure. The CSIRs mission states that their main objective is to, *"Collaboratively innovating and localizing technologies while providing knowledge solutions for the inclusive and sustainable advancement of industry and society."(*CSIR, 2022*).* With the mission statement they claim their main objective is to help the local industry grow and to adapt technological competence and drive innovation in the country. This mission is embedded in the political agenda in the country and the CSIR gets incentivized by following this agenda by its base funding.

> *Already it is about 30% of its income from the state government, specifically on what we call parliamentary grant comes through our parent ministry, which is the Department of science and innovation […] (*FacilitatorSA-b, 2022*).*

On the other hand, the research centers like the BIDC are incentivized to work with more established companies, both government agencies and private enterprises to get enough money to run their own research and to be able to help SMMEs. This is done by taking on contract work for established businesses to bridge the 70% gap, and to be a competitive enterprise themselves. FacilitatorSA-b says that the BIDC do a lot of said contract work to be able to make a viable business, but also to use their expertise like a consultant company.

> *[…] The other 70% We must find ourselves, whether it be through private sector, collaborations, and project contract R&D. It can also be from other state-owned enterprises, we can work with the likes of ours and African National Road agency, we can work with the medicines Research Council, we can work with any other public institutions as well. (*FacilitatorSA-b, 2022*)*

5.2 Startups perspective

There are several reasons why a startup would want to be in business with a facilitator like the CSIR, it could be about funding their development, tackling technology development issues or just to get help with the market orientation of the company. When a startup arrives at the CSIR, they must go through a strict application prosses conducted by a committee to gain access to the services the CSIR has to offer, to ensure high quality startups that have a fair chance to succeed. But first it is more relaxed as one startup said:

> *We approach those facilities directly. And they take it as a day-to-day process. So, the guys at the photonics will talk to you and we'll talk to this facility. So, there is not a central access point to get access to these funding desk, but in my perspective, there is not just a single manager*

> *that manages all of this. Obviously, the contract in the back goes to a central place. (*StartupSA, 2022*).*

StartupSA looked at other facilities, mostly private, but they could not find any that felt right and one that offered the services they relied on for a price they could handle. They approached the CSIR lab and had a sit down with them and concluded that both could get something back from collaboration. In this case the CSIR lacked additive equipment and 3d-printers to conduct testing with, and the startup made these types of equipment. This led to a good collaboration where the startup got funding and expertise to develop new technology, and the CSIR also got back a 3D printer in return that they improved through testing, but also could use to test other technologies.

> *We'll set up some shared areas, well, we put some of our equipment in that area. […] They've [CSIR] got some students coming through that wants to do AI projects or virtual reality projects, and they need test platforms to do it. Which means our technology then becomes available as a test platform, we are the aim of the technology so we can very easily integrate whatever they want to develop into the machine. (*StartupSA, 2022*)*

The importance of involving and helping students through their machines is highlighted. At the same time, the students can also help the startup with further development of the machine since they used it to test prototyped improvements of their technology. So, in this case, both the startup and the facilitator got a lot back from a co-creation process that occurred, and both worked as equipment sharers.

Furthermore, StartupSA stresses that the knowledge the facilitator provides is most crucial in why they work so closely with the CSIR. StartupSA feels safe knowing that if there is a problem, they cannot solve themselves, or if they just need some guidance, the CSIR always have some expertise on standby. In addition, they get access to technical data and market data that they would need to produce themselves if they had not been linked with the CSIR.

> *Yeah, I think that's my main advantage of working directly with the facility […] So you're getting access to data to helps us […] and we have access to brilliant people. Really brilliant researchers in this area. So normally the knowledge is there to support us. It is just getting through the day proven to allow him to spend time on this. (*StartupSA, 2022*)*

Again, StartupSA confirms that the most important job from the facilitators side is to offer high quality human capital to support them and accelerate their technology development. This is made possible by being in the same geographic area, having access to the same labs and working closely with the facilitator. StartupSA have experienced that even though the CSIR do contracting work for them by developing parts of the technology, there is a tight collaboration on both ends, and that is the keyway in which the CSIR helps startups achieve their goals.

5.3 The co-creation process and the sharing of resources.

All startups face the challenge of market entry and to succeed with product-market fit. In the CSIR they try to close this gap by preparing the startup for market launch when the product still is in the early phase of development.

> *So from the start, as soon as we can either develop, because a client asked for a specific development to improve their progress and technologies, or early on in their technology readiness levels of some technologies we develop, to already partner that up with a potential client so that shapes the product and the technology at the end of the day. (*FacilitatorSA-b, 2022*)*

By finding clients for a startup early in the development phase, the product can be customized to fit the need of a potential customer before a market launch. This service greatly increases the odds of a startup surviving the liability of newness and might guarantee some initial income. Furthermore, feedback from potential customers gives the startup important input from a different source than the CSIR. Building relations with a retailer or industry experts could lead to a sense of security and a potential network for a young business in its early product development phase.

As mentioned in 5.3.1, there is a secretive culture among the companies within an innovation hub, which in return makes it difficult for startups to collaborate. Yet, the CSIR claims to do what they can to facilitate cross-startup collaboration by hosting events where the startups can present their projects.

> *We invite people to readings, and host as many as possible. This is an opportunity for startups show what they are working on and it is a marketing opportunity for them. So, we try to do as many as possible (*FacilitatorSA-a, 2022*).*

At the CSIR, they host events for startups and SMEs to share their ideas with likeminded people. This event is a chance for startups to contact potential customers, as well as to compare their products to other companies in the industry. In the back of their mind this is also a place where collaborations between startups could start, although there is not enough evidence of this happening on a regular basis.

5.3.1 Cooperation and the sharing of resources

The cooperation and sharing of resources in South Africa occur between the facilitator and the customer directly. This is because the CSIR sits with most of the equipment and competence themselves, which cuts out the middlemen compared to the Norwegian structure of the sharing economy. As previously mentioned, the CSIR is split into different units, all operating separately on a day-to-day basis within the same geographical location. However, there is a board of directors who make managerial arrangements and work together to further develop the CSIR. This structure lets the facilitators focus mainly on providing counseling to the startups while not being distracted with the administrative issues of running a business like the CSIR.

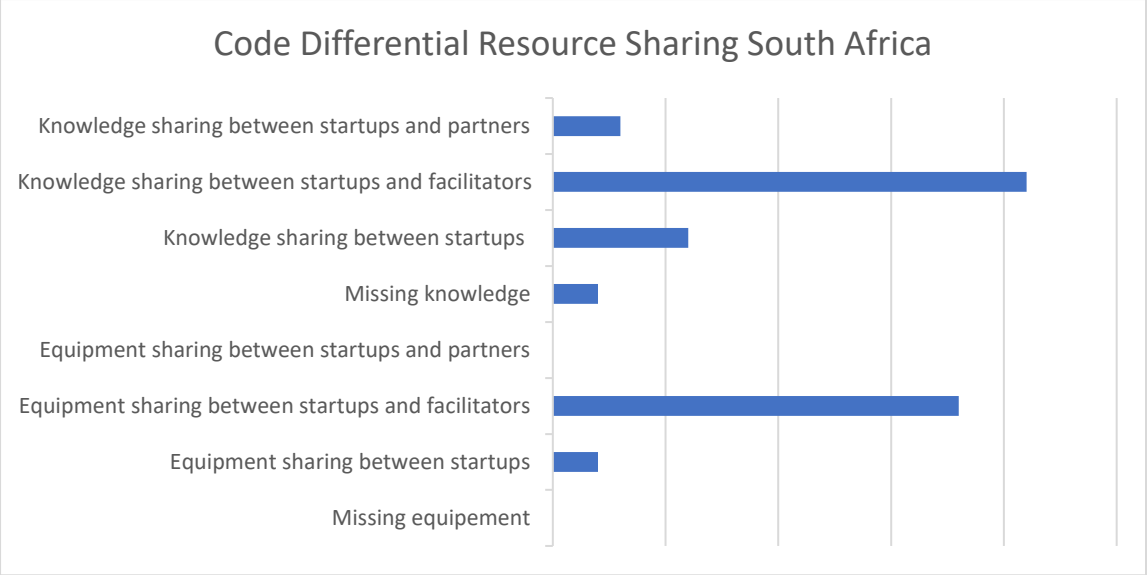

Figure 8 Code Differential Resource Sharing South Africa

In the Gauteng context, there is an even split between knowledge and equipment sharing, where the facilitators are the most important benefactors in the B2B sharing economy in the eco system as seen in Figure 8, which is not surprising given the structure of the CSIR. CSIR is the facilitator and directly distributes equipment to its customers, without the need for external help from partners. On the other hand, knowledge sharing is an interesting topic for the Gauteng context; they put together a team of experts from outside the CSIR, tailored for the startups needs. This gives the startup support in the human capital department by indirectly increasing the number of people working on their product.

> *It is the culture, and the employees, they can't just interact. I mean, I can drink coffee with you, like I'm working company and we just drink coffee, but we can't chat about what we're doing, because I already signed my contract with my company, a non-disclosure. I can't just check, oh, I'm doing this project, my company can't just do that. So unless the two companies have a formal agreement, then the employee can start chatting about sharing information about what they do (*EcosystemInformantSA, 2022*).*

EcosystemInformantSA speaks to the cultural rules of business in South Africa and claims that there is a secretive culture ruled by contracts and formal arrangements. Unless the proper paperwork is signed, it is hard for companies to share information about what they are working on, which in turn makes it difficult to have any informal collaboration.

5.3.2 Challenges for the CSIR

Our main informants in South Africa provided less data on the functioning of the CSIR as part of the wider entrepreneurial ecosystem, and about the more underlying social and business norms. To learn more about this, , we interviewed an ecosystem expert of the Innovation Hub in the Gauteng region The Innovation Hub is a collection of offices in Pretoria, close to the CSIR available for rent, that wants to promote economic development and competitiveness by fostering innovation and entrepreneurship (TheInnovationHub, 2022).

> *[…] Why are you located at the Innovation Hub? He said: There are two reasons: Image, because if you are in the Innovation Hub, your clients tend to think you are very innovative. And the second one is for security. In South Africa, things get stolen and the security in there is quite tight. […] So, it is not really reason for like, oh, I want to be here. I want to network with other firms to build a network, that is not the main reason. (*EcosystemInformantSA, 2022*)*

Hence, the main reason companies join an innovation hub is not to build networks with other businesses, it is to build an image as an innovative company and to have a secure workplace. Since the innovation hub is a newly established facility, the security and surveillance are state of the art and its less likely to be the victim of any crime while staying at the hub.

6 Discussion

During the analysis and data collection, several factors such as equipment and knowledge sharing, the functioning of entrepreneurial ecosystems, differences in incentives underlying the B2B sharing economy models and the co-creation processes occurring between actors emerged as interesting findings from both cases. In the discussion, we emphasize the comparison, analyzing differences and similarities between the cases selected. We initially formulated the following research question *"How can a B2B sharing economy aid startups in the early phase of technology development and market launch?"* To do this, we structure the discussion in two sub questions to make the discussion clearer and to be able to make a good cross-case discussion whilst having the scope of our main research question.

6.1 What resources, competencies, and infrastructure are available and how are they utilized by startups in the early phases of development?

The B2B Sharing Economy models in both countries are governed by incentives/mandates decided by the government/public bodies, which guide the goals and missions, and operative activities of the facilitators. This political embeddedness has been mentioned by facilitators in both cases and shows why the facilitators do what they do. This also dictates some aspects of how they operate and what criteria they have for the startups that want to use their services. What we can see from our analysis is that there are similarities and differences regarding motivational factors behind it. Since these facilitators both operate as nonprofit companies that are both partly funded by their respective national government with some agenda on their mind that reflects the mission of each facilitator.

Funding and incentives for B2B sharing economy facilitators

In South Africa, the CSIR has earmarked funding that has to go towards educational institutions and research (5.1.3), whilst the rest of the money they need can come from both collaboration with local companies, or assist startups that get funded by a fund that the CSIR also have earmarked towards the development of SMMEs. Like the

CSIR, the Norwegian Catapult is partly funded by the government, thus they have an embedded incentive to reach the goals the funder has set. At the same time, the Catapult is expected to be able to be a self-sustainable business with time, and this will be done by using the existing funds that they get from SIVA (4.1.1) to invest in partners that offer infrastructure, these partners then pay back the investment over some period. The partners do not have to solely offer this infrastructure and equipment to startups that go through the catapult, around 70-75 percent can be directed towards the existing industry that wants to pay for this service or the partner themself, in this way the catapult ensures that the partner can make money on this investment and the Catapult gets reimbursed the funds they invested.

The Catapult must actively invest in infrastructure that will be important in the future, and that is already a part of an active market. However, they do this by acting with local industry and to channel the right startup to the right partner that can provide both the equipment, network, and knowledge that the startup needs to be able to develop their product and their business. Likewise, the CSIR invest in equipment and infrastructure for both research and testing for SMMEs, but in their case, it is more focused on the research end. The CSIR system revolves more around offering research institutions equipment for academic research and academic spinoffs. They also require a return on their investment, this is done by calculating an hourly rate that the institutions must pay. They work towards being partly self-sustained and reinvest all their profits from industry contract work into the organization to offer better services to both SMMEs and researchers (5.1.3).

Centralized versus network-based organization of B2B sharing economy models

The key difference uncovered in the analysis is the structure and organization of the B2B sharing economy models in the Bergen region and the Gauteng region. In Bergen, the focal point of the sharing economy stands with the Catapult, in the sense that they oversee the network. As a manager of the social capital available to its customers, the Catapult puts the startup in contact with potential partners to assist with further development (4.1.2).

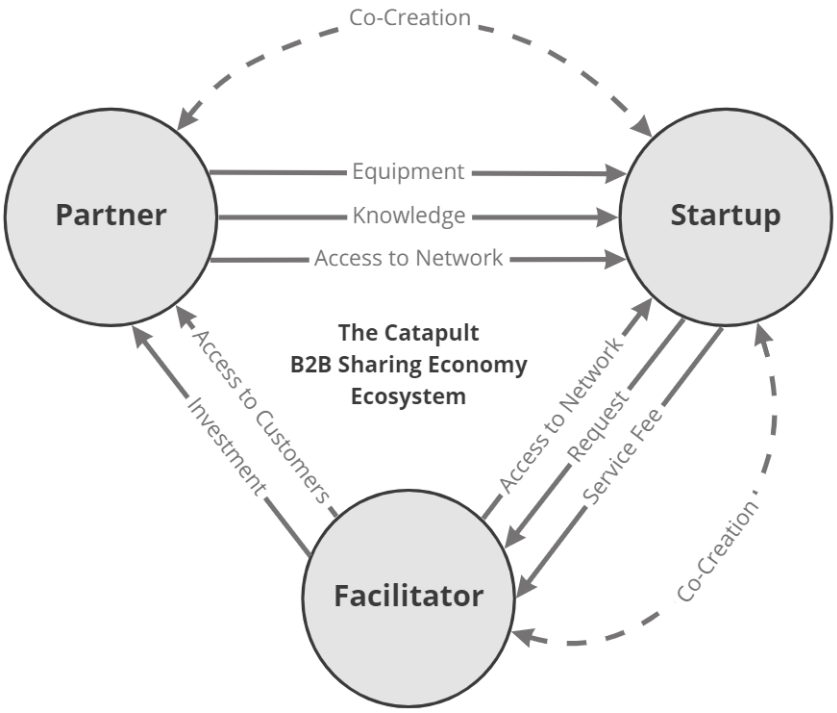

Figure 9 The Catapult B2B Sharing Economy Ecosystem

Figure 9 shows the Catapults B2B sharing economy, where the facilitator puts startups in contact with the right partner in exchange for a fee. In return the startups get access to a network of partners and their resources, which increases their social capital (Jones et al., 2013) and lowers the cost disadvantages independent of size (Porter, 1979). Meanwhile, partners get investments from the facilitator on a project basis, based on the number of startups using their facilities. But for some partners, taking on startups as customers is more than a business transaction. Our findings show that some partners enjoy collaborating with younger companies and even share their network to further extend the startups reach, because of the intriguing cases they bring. This relationship is not granted to all the partners' customers but is based on trust between the partner and startup. This approach to the sharing economy builds a network of partners that can expand further as the startup grows, which in return leaves the startup with an assisted social capital and access to several tangible resources from various sources.

But not all startups are a great fit for the catapult after the initial screening of the product or idea, because of missing components or a lack of capital requirements. This could relate to the Catapult still being in its infancy and still exploring the B2B

sharing economy phenomenon. Additionally, the catapult cannot facilitate for all startups considering the wide range of potential requirements a startup might have. However, using the catapult administration as a “filter”, to make sure only the most promising ideas reach the partners, could lead to more interesting projects and a prosperous relationship in the future between the startups and partners.

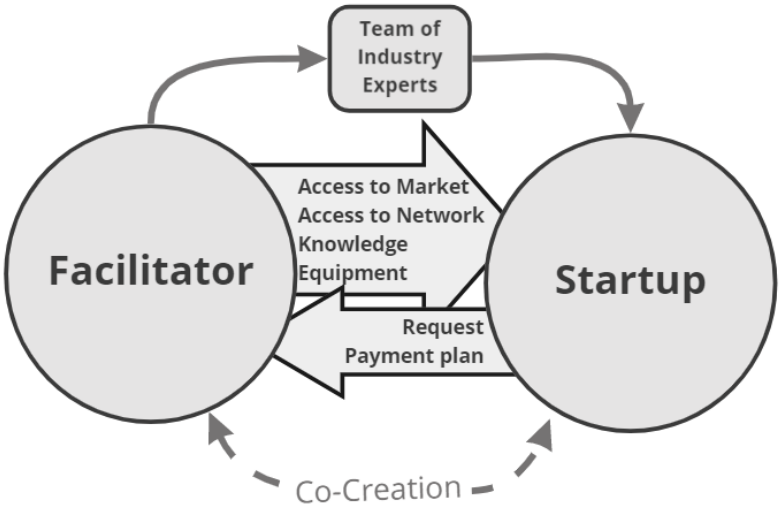

Figure 10 The CSIR B2B Sharing Economy Ecosystem

In the Gauteng context, represented in this thesis by the CSIR, the process of sharing resources is somewhat similar to the Catapult. Figure 10 shows a sharing of resources between the facilitator and the startup, as well as a team of industry experts in exchange for a payment plan, which indirectly increases the startup’s human capital (Jones et al., 2013) and lessens the capital requirements (Porter, 1979). The more centralized CSIR, is tasked with helping SMMEs overcome their barriers through a program where the facilitator itself takes more responsibility by offering in-house services to startups instead of outsourcing to partnering companies. This responsibility combined with the payment plan leads to the CSIR taking a greater risk when facilitating for startups. By being a centralized adaptation of the B2B sharing economy, the CSIR lets the startup choose their own involvement in the project, by filling the gaps of knowledge and skill that the startup requires to function as a business. However, this centralized approach limits startups to the capability of CSIR and might not lead to an expansive network after their stay at the facility, which in return could increase the liability of adolescence. Which refers to the likelihood of a startup’s success after the initial startup period (Yang & Aldrich, 2017). That is not to say they

do not link startups with anyone outside of the facility, FacilitatorSA-b claims that providing startups with an early pilot customer makes it easier to reach the market. This does create a network for the startups, but to a lesser extent than compared to the Bergen context, where there are multiple sources of outside support. However, this does help the startups overcome product differentiation (Porter, 1979), by introducing the startup to a potential customer early on, which might lower the brand loyalty of retailers.

Comparatively, the CSIR has a limited number of spots available, they must both host the equipment and testing facilities and since they provide technical support, must house the people. The Catapult, on the other hand, outsources the equipment providers and can expand by including additional partners, and finding existing testing facilities that bigger companies do not utilize to its full potential. Both adaptations of the B2B sharing economy assist startups with capital requirements and cost disadvantages independent of size, which is two of Porters barriers to entry (Porter, 1979). But to differentiate, the CSIR has a better system in place for lowering the barrier of product differentiation.

6.2 How do the sharing and co-creation processes materialize in the B2B sharing economy model and how do these models interact in the wider entrepreneurial ecosystems?

To better comprehend how the sharing economy and co-creation interact in the wider EE there are a few key areas that must be discussed. First and foremost, the Catapult and the CSIRs role in regards to the sharing economy, and then the mechanisms that are in place for encouraging co-creation.

The Catapults and CSIRs contribution to the sharing economy

The B2B sharing economy principles seen in our research share similarities with the P2P models in the way that there is facilitation to get access to assets that one does not directly own. However, in our findings, there are key differences from the P2P model that surface. In the P2P model, the facilitator takes a much less active role in the ecosystem, and only facilitates the leasing agreements and promotional parts of the deal (Acquier et al., 2019). In the Catapults B2B sharing model, the facilitator takes a much more active role to assess the customers which in this case is startups, before

handing them over to the right partner. This is done to both ensure that the startup gets the right help, and to ensure that the partners get a startup that they can rely on and can help overcome the challenges the startup face. Whilst the CSIRs model, the facilitator is even more active, especially since they deliver all the services in-house.

The most prevalent difference between the P2P model and the B2B is the inherent need to have deep rooted relations with companies to build trust, that is usually built over years of interaction (Grondys, 2019). What the Catapult does is to share this network of trust it has built up over time with its partners and vouch for the customer to give them rented social capital and equipment. This trust is not as important in the context of the CSIR, because they are the ones who provide both the human capital and the equipment.

From commercial, transactional to co-creation and relational

The users of the services provided by the Catapult and the CSIR are customers, which contractually makes the relationship purely transactional. However, there is a general trend in the data that partially refutes this. It comes up several times that even though on paper it is a purely transactional relationship between the parties, there is an underlying desire from the facilitators, as well as partners that the startup company should succeed. Thus, there are several cases where the facilitator goes out of their way to give a little extra which is not necessarily in direct line with the contractual agreements such as helping with legal issues, sharing market data, and developing a solid business plan. These extra services ensure that the startup gets control on some of the prevalent liabilities (Yang & Aldrich, 2017). Furthermore, we have seen instances where the benefits go both ways, where the providers also receive expertise from the startups, and the collaboration to provide other startups with their equipment leads to an interesting case of co-creation.

There are examples from both the Gauteng and Bergen context of startups assisting partners or facilitators with innovation. In Bergen, a startup helped by developing a new closed containment aquaculture tank and sold it back to the partner, so that it can be used by other startups in the future (4.3). Comparatively, in Gauteng the startup was contacted by the CSIR due to a lack of additive equipment in their facilities. The startups obliged and developed a 3D printer that is being used to assist both student

projects and startups (5.2). Furthermore, these two examples show that the sharing economy has the potential to be a two-way street. That the sharing of resources can occur in the original sense, a partner sharing knowledge and equipment with a startup, but also that a startup can assist a partner with their product development and research.

In Gauteng, they facilitate co-creation between startups by hosting events where startups can present their ideas, this is described as a marketing opportunity and a way for entrepreneurs to pitch in and come up with suggestions for further development and partnerships if collaboration is mutually beneficial for both parties. The facilitator in Gauteng and partners in Bergen see the potential to proactively connect startups with related technologies and markets through the B2B sharing economy model. Since we do not have concrete evidence of this type of co-creation happening, the phenomena are only considered to be a potentially interesting bi-product and would be an interesting topic to do more research on.

Table 3 Summary empirical findings

	What resources, competences, and infrastructure are available and how are they utilized by startups in early phases of development?	How do the sharing and co-creation processes materialize in the B2B sharing economy and how do they interact in the wider entrepreneurial ecosystems?	How can a B2B sharing economy model aid startups in the early phase of technology development and market launch?
Bergen	Testing, prototyping and verification equipment	Politically rooted	Provides a network of industry partners
	Testing, prototyping and verification knowledge	Social Capital	Partners shares their own network, which gives the startups access to the wider ecosystem
	Non-mass production equipment	Decentralized Ecosystem	SIVA provides capital requirements to grant startups access to otherwise unavailable equipment and network
	Business development knowledge	Strong ties to local industry	
	Network of partners	Facilitator invests in partners infrastructure	
		Co-creation occurs between partners and startup	
		Facilitator is a non-Profit, whilst partners are profit driven	
Gauteng	Testing, prototyping and verification equipment	Politically rooted	Provides capital requirements and a team of industry experts
	Testing, prototyping and verification knowledge	Human Capital	Enables startups to access otherwise unavailable equipment and guidance
	Non-mass production equipment	Centralized Ecosystem - No external partners	Reaches out to pilot customers
	Business development knowledge	Collaboration with University	
	Team of expertise for product development	Facilitator invests in Startups	
		Co-creation occurs between facilitator and startup	
		Facilitator is a non-profit	

7 Conclusion and further research

The aim of this study has been dictated by our research question “How can a B2B sharing economy model aid startups in the early phase of technology development and market launch?”. Furthermore, we have explored how the B2B sharing economy and co-creation processes materialize through the Catapult and the CSIR into their EE and what equipment and knowledge they provide to startups. Since the study has a comparative component looking at the ecosystem in Bergen and Gauteng, we have discussed the different approaches of the Catapult centre and the CSIR to understand why they are organized as they are, and how they provide value to their local EE and their users through a B2B sharing economy model.

Overall, our research has highlighted how these centers assist startups with gaining access to both tangible and intangible resources and how they facilitate co-creation instead of just transactional relations. Our data gives a strong indication that co-creation is taking place between startups, facilitators, and partners which further leads to the development of both the startup and facilitators. On this basis, we can say that the co-creation process seen in the centers is a contributor to the overall development of the B2B sharing model and the local EE.

The CSIR and the Catapult support startups by providing tangible resources which reduces the barrier of cost disadvantage independent of size and gives the startups access to physical equipment and valuable resources. However, our findings show that intangible resources such as social and human capital are just as important for the B2B sharing economy. The entrepreneurs utilize both aspects in the early phase of technology development to transition from a startup to a business.

Moreover, there is a difference in how the facilitators handle the liability of newness; the Catapult relies on its network of partners to help startups and strengthens the social capital of their entrepreneurs by introducing them to this network. On the other hand, the CSIR are more human capital oriented; by implementing a team of industry experts into the startup, they indirectly increase the skills, expertise, and knowledge within the firm. However, there is some social capital in the Gauteng context as well, but to a lesser extent than in Bergen.

Contributions to literature and practice

Our research findings suggest that the B2B sharing economy holds great potential in both the Bergen and Gauteng contexts, it is still a novice research topic that needs development both in terms of practice and theory. This study contributes new insights in the growing field of study on the sharing economy. This master's thesis addresses a gap in the literature concerning the sharing economy in a B2B context.

One prevalent contribution is the role of B2B sharing centres that operate and contributes towards making the local EE more effective and how these centres foster co-creation in the EE. Considering the limited research in these fields, our findings form a basis for discussion and support of future research

This study also provides practical insights for entrepreneurs seeking to participate in a B2B sharing model as well as for regulators and policymakers. Contrary to most existing research on the sharing economy where the sharing of tangible resources has been the focus, our findings suggest that intangible resources such as additional support and services provided by the B2B facilitators play an important role for the startups and we recommend having in mind the importance of facilitating for these resources such as social and human capital to better tackle the liability of newness.

Limitations of the study and further research

There are limitations to this study regarding the population sample groups, it was challenging to find the exact same type of informants in the two countries, and especially startup companies that had been customers of the Catapult or the CSIR. The startup companies from the case in Bergen were very similar and knew each other privately which could be a problem. Another limitation is that the two different facilitators operate with a different model, so there has not been data collected from partners in the Gauteng case.

Additionally, there is the limitation of our general research, the case study we chose is considered by us to be the best way to capture the sharing economy models in real time, however, our findings are not directly generalizable (Yin, 2018), they do give an overview on how the sharing and co-creation process materialize in the two cases and what resources are available to startups, but there is most definitely more to it than we

have uncovered. Finally, there was limited prior research on both B2B sharing and catapults. Thus, we drew understandings from P2P literature for the sharing economy and predominantly from websites for the catapults and innovation centres.

Regarding future research, since we did a cross-sectional study, it would be interesting to see a longitudinal study with representatives from several of the Norwegian catapult centres and compare to different branches of the CSIR and other innovation facilitators in South Africa.

At the same time, it could be interesting to look at the entrepreneurial output from the startups that are customers to the different facilitators and map their level of success, although it is hard to map such data and measure them up against each other, it would serve as an indicator of which model that works best in each case. Overall, there is much room for further research on both the B2B sharing economy and catapult centres. Both subjects are relatively new and literature on the topics is therefore limited.

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Appendix

Attachment 1: Facilitator Interview guide

1. **Interview goals**
    - Incentives for Partners
    - Pricing etc.
    - What barriers does the Hub lower for startups?
    - Cooperation between startups and facilitators
    - What resources, infrastructure and competences are available?
    - How do they search for partners?

General

1. Tell us a little about yourself and your role as a facilitator
    a. Briefly about the process of establishing the CSIR/Catapult from the start (recruiting partners, providers)
    b. How do you go about finding Partners?
        i. Or do they come to you?
2. Are company's members or just users of your infrastructure?
    a. How many companies are members/customers?
    b. Customers on a project basis?
    c. How many startups, SMEs, and partners?
3. Can you explain in your own words what the facilitators task is?
    a. What kind of competencies, advice and resources does the instrument offer to customers?
    b. Which of your offers are most used?
4. What would you say are the biggest barriers to startups that use your services?
    a. How do you help reduce those barriers?
        i. Use his barriers as an example
5. How do you facilitate for startups to receive help from the Enablers, equipment, and infrastructure available to your customers?
    a. Is the process different for larger companies?

    b. How involved are you in further interaction between Partners and startups?
6. How do you incentivize Partners to assist the startups?
7. How does a startup become a customer of yours?
    a. *How many come from incubator communities?*
    b. *Application via websites*?
    c. What do you look for in a customer?
8. To what extent do you think the facilitator contributes to startup's technology development?
    a. *Faster technology development, access to infrastructure that they do not have in-house, access to expertise, etc. Additionality, what has the Hub contributed that they had not managed with their own resources*
    b. Do you think being a part of a facility like yours, gives a "stamp of approval" for startups, when it comes to finding investors, going to market and so on?
9. Have startups that have grown here at the facility ever returned to further develop or research a new idea?
10. Do you encourage the startups to work together to promote innovation?
    a. Are there any barriers to establishing cooperation between companies, e.g., protect trade secrets and competitive advantages?
11. Do you have any routines in relation to NDAs and creating trust between the companies so that they can collaborate without anyone stealing the idea / product?
12. Is it allowed to ask about the price model?
    a. Does the price depend on the size of the «company»? Would an established SME pay more than a new startup?
    b. Does it depend on what equipment they use?
    c. Or how much they use the services?
13. Since both established companies and startups can use the facilities. How do you prioritize access to the equipment?
14. What do you see in the future for you?
    a. Expansion, vision
15. Is there any equipment, test facilities or expertise you would like to add?

Sharing economy

16. What visions do you have for the organization and thus B2B sharing economy?
17. Does B2B sharing economy have a potential that has not been fully exploited?
    a. *Reasons for it? (Which has to do with B2B relationships, more complex?)*
18. How this program contributes to the development of B2B sharing economy?
19. What do you think is the reason why B2B sharing economy has not gained a foothold?
20. *Lack of official platform, trust, legal reasons, incentives for companies, etc.*

Attachment 2: Interview guide startups

1. Where did you get the idea from?

2. Quality perception of the customer

3. Which market segments do you see yourself entering first.

    a. Customers or companies

    b. Nationally, internationally

4. How is the competitive situation in the market you are entering?

5. Where in the development phase are you now?

    a. Design, verification, technology testing and market research

6. Do you have any pilot customers, or testers?

    a. How did you get in touch with them?

    b. Who are they?

7. What would you say is the biggest barrier for you now?

    a. Financing, technology testing, marketing / acquiring customers, competitors, economies of scale, etc.

Regarding the facilitators

8. Why did you use the Catapult/CSIR and how did you find out about it?

9. How has the facilitator contributed to the company's technology development

> a. Faster technology development, access to infrastructure that you do not have in-house, access to expertise, etc. *It is additionality - that is, what has the facilitator contributed that they had not managed with their own resources*
>
> b. Do you feel that your stay at the Catapult/CSIR has given your startups a “Stamp of approval”?
>
> And do you think that stamp will help getting investors and reaching market?

10. What kind of competence, advice and guidance do you get from the facilitator?

11. You share the facilities with larger, more established companies, have you felt less prioritized by this in any way?

12. Do you have a collaboration on innovation / technology development with any of the other startup companies that use the infrastructure?

13. What impression have you got of the facilitator and partners in relation to NDAs and confidence that partners will not steal the idea / product?

14. Is there any equipment, test facilities or expertise you are missing?

15. What’s next for the company?

> *a. Further technology / product development, establishment of production, market development, establishment of new collaborations (technology partners, market collaboration)*

16. Will you use the Catapult/CSIR or similar infrastructure later in the development process or if similar needs arise?

Sharing economy

17. Say that there is a B2B sharing economy that we described earlier, would you still use the infrastructure, or would you have used a sharing economy platform?

> a. Decentralized sharing economy vs the Catapult/CSIR?

18. What do you think is the reason why B2B sharing economy has gained little traction?

> *a. Lack of official platform, trust, legal reasons, incentives for companies, etc.*

Attachment 3: Consent form and invitation letter

Are you interested in taking part in the research project?

Comparing B2B sharing economy concepts in Norway and South Africa: **Role and interactions with the regional entrepreneurial ecosystems**

This is an inquiry about participation in a research project where the main purpose is to investigate how sharing economy models help startup companies at an early stage of development. In this context, we want to compare the offers available in Norway and South Africa. In this letter we will give you information about the purpose of the project and what your participation will involve.

Purpose of the project

The purpose of this master's thesis is to explore how the sharing economy model can help startups in the early stages of technology development and market launch. To argue for the B2B sharing economy, it is important to map the current infrastructure for startups and innovation, as well as what characterizes the collaboration between startups and innovation facilities. In addition, to support the possibilities for the sharing economy, this thesis is a comparative study between the Norwegian and South African ecosystem.

Our research questions are as follows:

How can a B2B sharing economy aid startups in the early phase of technology development and market launch?

1) *What resources, competences and infrastructure are available and how are they utilized by startups in early phases of development?*

2) *How do the sharing and co-creation processes materialize in the B2B sharing economy and how do they interact in the wider entrepreneurial ecosystems?*

This project is in the form of a master's thesis linked to the PhD project of Kelvin Ivankovic and is the final part of the master's program for Innovation and Entrepreneurship at the Western Norway University of Applied Sciences.

Who is responsible for the research project?

Western Norway University of Applied Sciences is the institution responsible for the project.

Why are you being asked to participate?

The selection for the data collection is based on companies and informants who are connected to innovation facilities such as catapults, innovation hubs and incubators. This either in the form of employees, startup companies or companies associated with

the innovation facilitator. Based on this, we want to contact you for an interview to build a data set with your experiences, thoughts about the infrastructure and sharing economy as a concept in B2B. We plan to talk to 8-10 representatives.

What does participation involve for you?

If you choose to participate in the project, it means that you participate in an interview that will take approx. 1-1.5 hours of your time. The questions will be about you and your experiences with the innovation facility, as well as your company. If you allow this, audio recordings and notes from the interview will be taken. Then the audio recording will be transcribed. This transcript can, if desired, be sent to you afterwards so that you can have the opportunity to read through it for approval.

Participation is voluntary
Participation in the project is voluntary. If you chose to participate, you can withdraw your consent at any time without giving a reason. All information about you will then be made anonymous. There will be no negative consequences for you if you chose not to participate or later decide to withdraw.

Your personal privacy – how we will store and use your personal data

We will only use your personal data for the purpose(s) specified in this information letter. We will process your personal data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act).

At Western Norway University of Applied Sciences, we, supervisor Inger Beate Pettersen and project owner Kelvin Ivankovic will have access to the information.

In accordance with the guidelines at Western Norway University of Applied Sciences, the data material will be securely stored on our private PCs, and we will ensure that no unauthorized persons have access to the information.

The participants will be able to be recognized indirectly in the publication by information about background and knowledge within the topic, but names will not be published. When using directly identifiable quotes, we will contact you for a quote check and permission to use this.

What will happen to your personal data at the end of the research project?

The information is anonymised when the project owner's PhD is completed / the assignment is approved, which according to the plan is June 2025. At the end of the project, audio recordings will be deleted.

Your rights
So long as you can be identified in the collected data, you have the right to:

- access the personal data that is being processed about you
- request that your personal data is deleted
- request that incorrect personal data about you is corrected/rectified
- receive a copy of your personal data (data portability), and
- send a complaint to the Data Protection Officer or The Norwegian Data Protection Authority regarding the processing of your personal data

What gives us the right to process your personal data?

We will process your personal data based on your consent.

Based on an agreement with Western Norway University of Applied Sciences, Data Protection Services has assessed that the processing of personal data in this project is in accordance with data protection legislation.

Where can I find out more?
If you have questions about the project, or want to exercise your rights, contact:

- Inger Beate Pettersen, Western Norway University of Applied Sciences, supervisor/Project coordinator, inger.beate.pettersen@hvl.no
- Martin Olaf Quist, Western Norway University of Applied Sciences, student, 182717@stud.hvl.no
- Svein Inge Solaas, Western Norway University of Applied Sciences, student, 181439@stud.hvl.no
- Our Data Protection Officer at Western Norway University of Applied Sciences: Trine Anikken Larsen, Trine.Anikken.Larsen@hvl.no
- Data Protection Services, by email: personverntjenester@nsd.no or by telephone: +47 53 21 15 00.

Yours sincerely,

Project Leader **Students**

Inger Beate Pettersen Martin Olaf Quist and Svein Inge Solaas

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Consent form

Consent can be given in writing (including electronically) or orally. NB! You must be able to document/demonstrate that you have given information and gained consent from project participants i.e., from the people whose personal data you will be processing (data subjects). As a rule, we recommend written information and written consent.

- *For written consent on paper, you can use this template*
- *For written consent, which is collected electronically, you must choose a procedure that will allow you to demonstrate that you have gained explicit consent (read more on our website)*
- *If the context dictates that you should give oral information and gain oral consent (e.g., for research in oral cultures or with people who are illiterate) we recommend that you make a sound recording of the information and consent.*

If a parent/guardian will give consent on behalf of their child or someone without the capacity to consent, you must adjust this information accordingly. Remember that the name of the participant must be included.
Adjust the checkboxes in accordance with participation in your project. It is possible to use bullet points instead of checkboxes. However, if you intend to process special categories of personal data (sensitive personal data) and/or one of the last four points in the list below is applicable to your project, we recommend that you use checkboxes. This because of the requirement of explicit consent.

I have received and understood information about the project *[insert project title]* and have been given the opportunity to ask questions. I give consent:

- ☐ to participate in *(insert method, e.g., an interview)*
- ☐ to participate in *(insert other methods, e.g., an online survey) – if applicable*
- ☐ *for my/my child's teacher to give information about me/my child to this project (include the type of information)– if applicable*
- ☐ *for my personal data to be processed outside the EU – if applicable*
- ☐ *for information about me/myself to be published in a way that I can be recognised (describe in more detail)– if applicable*
- ☐ *for my personal data to be stored after the end of the project for (insert purpose of storage e.g., follow-up studies) – if applicable*

I give consent for my personal data to be processed until the end date of the project, approx. *[insert date]*

(Signed by participant, date)