

Kaja Juel Solheim  
Sophie Hopland Irgens

# The Process of Sharing Data in an Asymmetric Context - The Synergy in Product and Process Development

An Inductive Study on How New Ventures and Established Firms Organize and Manage Their Collaborative Efforts to Share Data

Master's thesis in NTNU School of Entrepreneurship  
Supervisor: Lise Aaboen  
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# Abstract

In a rapidly shifting digital business landscape, data is widely considered to be among the most valuable resources a firm can possess. As part of a strategic shift towards a transition to a sustainable society and economy, the Norwegian parliament recently highlighted the importance of sharing data between firms. It was also said that to expedite the transition by innovative solutions, one should look to new ventures. The fundamental issue at hand is that, in comparison to large and established organizations, new ventures have limited access to data, making scaling and growth towards economies of scale all the more difficult. A solution to this predicament is creation of synergies through data sharing between new ventures, and established ones. However, these strategic collaborations are not without their accompanying difficulties. In the existing literature on relationship development between new and established firms, only a limited amount of focus has been given to understand how the process of exchanging data develops, and what factors are important to create a fruitful collaboration. Hence, this master thesis seeks to *investigate how new ventures and established companies manage their collaborative efforts to share data and what affects their relationship.*

To fully comprehend how a relationship between a new venture and an established firm evolves through data-sharing collaboration, we conducted a single case study with informants from both sides of the table. The findings were analyzed using a three-layered theoretical framework to understand their activity links, actor bonds, and resource ties, along with Ford's five variables to determine how their relationship has evolved over time.

We find that the prominent prerequisites for a successful data collaboration are the establishment and utilization of joint agreements and a high level of trust from both parties. Contrary to Ford's hypothesis, the study found an inverted development of trust and distance between the two stakeholders, which contradicts Ford's assertion that trust increases and distance between the parties reduce over time. Regardless of whether these variables are present from the beginning or evolve over time, it is critical to evaluate and seek to continuously improve them in order to ensure long-term sustainable data collaborations. Hence, the study contributes to the current understanding of how episodes affect relationships for new ventures collaborating with established firms while sharing data, and how it affects the development.



# Sammendrag

I digitale og dynamiske forretnings-landskap anses data å være de blant mest verdifulle ressursene et selskap kan ha. Nylig la Stortinget frem en stortingsmelding der viktigheten av datadeling mellom bedrifter ble understreket, og fastslo videre at etableringen av nye og lønnsomme virksomheter vil stå sentralt i akselereringen av skiftet mot et mer bærekraftig samfunn og en grønnere økonomi. Et fundamentalt problem med dette er at i forhold til store og etablerte selskaper har nyetablerte virksomheter svært begrenset tilgang til data, noe som gjør skalering og vekst mot stordriftsfordeler desto vanskeligere. Den mest lovende løsningen på problemet baseres på deling av data gjennom strategiske samarbeid mellom etablerte og nye virksomheter for å skape synergieffekter og vinn-vinn-situasjoner. Slike samarbeid er dog ikke problemfrie, og eksisterende litteratur har viet lite oppmerksomhet til å dokumentere og forstå relasjonsutviklingen mellom nye og etablerte virksomheter som deler data. Dette gapet i forskning vanskeliggjør datadeling da virksomheter ikke har nok kunnskap om hvilke faktorer som er viktige for å skape fruktbare samarbeid og synergier. Den overordnede målsettingen for denne masteroppgaven er derfor å kartlegge *hvordan nye og etablerte virksomheter håndterer samarbeid der det deles data og hvilke faktorer som påvirker utviklingen av forretningsrelasjonen*.

For å belyse dette gjennomførte vi en enkeltstående case-studie av et nyetablert og etablert selskap som deler data som ressurs, med informanter fra både det nye og det etablerte selskapet. Funnene ble analysert ved et teoretisk tre-lags rammeverk for å forstå aktivitets-koblinger, aktør-bindinger og ressurs-bånd. Deretter ble dette sett i lys av Fords fem variabler, med den hensikt å kartlegge hvordan forholdet deres har utviklet seg over tid.

Funnene viser at etablering og anvendelse av felles avtaleverk og høy grad av tillit fra begge parter er sentrale forutsetninger for vellykkede strategiske datadelings-samarbeid. Vi finner en omvendt utvikling i tillitsgrad og avstand mellom de to interessentene, som motsier Fords hypotese om at tillit øker, og avstand mellom parter reduseres, over tid. Uansett om disse variablene er tilstede fra begynnelsen i et samarbeid, eller utvikles over tid, er det avgjørende å evaluere og kontinuerlig arbeid med å forbedre dem for å sikre langsiktige og bærekraftige samarbeid. Studien bidrar med dette til å styrke den nåværende forståelsen av hvordan episoder påvirker relasjonen mellom nye virksomheter som samarbeider med etablerte aktører, og hvordan dette påvirker utviklingen av relasjonen.





# Preface

This thesis is written by two students as a final part of their master's degree at The School of Entrepreneurship (NSE) at The Norwegian University of Science and Technology (NTNU). The project has been carried out at the Department of Industrial Economics and Technology Management, under the supervision of Prof. Lise Aaboen.

The submission of this thesis marks the end of two educational and eventful years at NSE. During this time, both authors have established their own technology-based businesses. Through activities linked to this, the authors have been made aware of the importance of both collaboration with more established firms and the challenges of exchanging data. This has undoubtedly generated a great deal of excitement and closeness to the findings.

The authors would like to express their sincere gratitude to their supervisor Lise for insightful discussions, encouragement and patience throughout the project. Additionally, the authors would like to thank the informants from BIR and Carrot for taking their time to be part of this study and sharing their insights and experiences. Their answers and insights have been invaluable for the completion of the thesis.

*Kaja Juel Solheim & Sophie H. Irgens*

Trondheim, June, 2021



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# 1 Introduction

## 1.1 Background and motivation

In the fast-moving digital economy, data might be the world's most valuable asset (Szczepański, 2020). There has been a remarkable shift in the global economy from businesses owning fixed solid assets to the rise of the intangible economy. Ten years ago, the world's biggest firms would typically own equipment and property. Today, the biggest firms in the world are predominantly technology-based companies. These new companies have been termed “the giants that deal in data” (The Economist, 2017). Across numerous industries, data is now a critical element in the value chain. As the economy is moving toward services and products based on data, it is generally assumed that the amount of data generated will continue to grow at an increased rate. Firms gather data from their own internal systems and from their products. For example, the Norwegian energy company Equinor gathers data about their sales, but also about the physical variables measured at floating windmill plants. Large, established firms can gather vast amounts of data. In May 2021, the Norwegian Parliament, Stortinget, published a white paper titled “Data som ressurs- datadrevet økonomi og innovasjon” (Meld. St. 22 (2020–2021)). The message was that they considered the value creation that is made possible by data as an important input factor in the production of goods and services, or when data is a driver for innovative solutions, as one of the most prominent factors to help Norway's transition to a sustainable society and economy. The key to making this happen is sharing data (Meld. St. 22 (2020–2021)).

The white paper also highlighted the importance of including new ventures to develop new business models, products and services. Over the last decades we have seen rapid and sometimes devastating change in almost every industry (Matarelli, 2018). The companies that sit on the side line instead of being actively engaged in innovative efforts are likely to be surpassed as small firms with big ideas shake up established industries (Cefis & Marsili, 2005; Etemad & Keen, 2018; Ugur & Vivarelli, 2021). One of the most popular ways to ensure that a company's innovation capacity is strengthened, is through collaboration (Horn & Keyzer, 2014). Large established firms are looking to new ventures to increase their flexibility and adaptability. In fact, in a study conducted by KPMG (Horn & Keyzer, 2014), as much as 88% of the respondents in the established firms reported that innovation comes from collaboration with new ventures. Existing literature confirms that entrepreneurship and new ventures are important drivers behind the mechanism for economic development (Acs et al., 2008; Christensen & Bower, 1996).

Through disruptive technologies and entrepreneurial activities the entrepreneur makes vital contributions to employment rates, innovation and growth and welfare effects (Acs et al., 2008; Audretsch, 2007; Christensen & Bower, 1996; Schumpeter & Nichol, 1934). Startups and Small and Medium-sized Enterprises (SME) have the upper hand when it comes to being fast on their feet and agile in their organizations (Weiblen & Chesbrough, 2015). Especially in the technological industry, large and established firms are now increasing their efforts to tap into their surrounding ecosystems of startups and innovation actors (Weiblen & Chesbrough, 2015).

By cooperating, new ventures and established firms have the chance to lean on each other for the resources and characteristics they lack themselves. The established firm can strengthen their innovation capabilities and remain relevant through rapidly changing environments by learning from the new venture. Big firms are seeing the advantages of these entrepreneurial abilities and seeking to adapt them in their own organizations (Weiblen & Chesbrough, 2015). The new venture can in turn use the support of the established company to grow. The established firm will have access to network, knowledge and financial resources that the new venture is in dire need of. Strategic collaborations have been found to be important for value creating in entrepreneurial firms (Larson, 1992; Madhok & Tallman, 1998; Talay et al., 2020). Thus, giving new ventures access to the data gathered by large established firms might lead to new products or innovations for the established firm, and a chance to grow for the new venture. However, cooperation between a new venture and an established firm can take many forms, but none are without their accompanying difficulties (Weiblen & Chesbrough, 2015). The asymmetry in size gives rise to a number of challenges. For example, cultural or organizational differences may lead to misunderstandings and different goals might pull the two parties in different directions.

The development of dyadic relationships between companies has enjoyed a longstanding focus of research efforts (e.g Batonda and Perry, 2003; Ford, 1980; Håkansson & Snehota 1995). However, the current literature is mainly focused on relationships between established firms rather than aiming attention at new ventures (Aaboen & Aarikka-Stenroos, 2017; Prashantham & Birkinshaw, 2008). This is an important aspect to consider because new ventures are often limited by their newness and smallness (Hannan & Freeman, 1984). In a relationship with an established firm this asymmetry in size and access to resources will have various implications (Johnsen & Ford, 2008; Munksgaard et al., 2015). The asymmetric dimensions in interfirm relationships have attracted the interest of researchers (e.g Johnsen & Ford, 2008), but the subject has often been approached by focusing the examination on one characteristic at a time. Some focus on

asymmetry in power (Emerson, 1962; Hingley, 2005), others on commitment (Tellefsen, 2002) or trust (Batonda & Perry, 2003; Morgan & Hunt, 1994). Although this approach provides detailed insight and understanding of each of these concepts, it fails to capture the complexity of interfirm relationships. It has therefore been called for further research on strategies employed by new ventures and established firms when collaborating to ensure that they work jointly to the benefit of their collective interests (Munksgaard et al., 2015).

In the field of industrial marketing and purchasing (IMP) research on relationships between companies, the body of literature concerning exchange of digital data is scarce. Most literature deals with the physical exchange, and the needed technological infrastructure to send and receive data (e.g Celik et al., 2019; Eckartz et al., 2014, Karvounarakis et al., 2013). The process of sharing resources and the development of the relationship are intertwined processes as one will affect the other (Håkansson & Snehota, 1995). There is little research on how the activities of exchanging data might affect the relationship and vice versa, and thus a need for further research on how the process of exchanging data between a new venture and an established firm develops and what factors are important to this process.

The literature that does exist, highlights four main challenges, namely ownership and data access (Brost et al., 2018; Eckartz et al., 2014; Skogli et al., 2019; Yallop et al., 2021), privacy regulations (Brost et al., 2018; Eckartz et al., 2014; Lee, 2021; Skogli et al., 2019) , interoperability and standard formats (Lee, 2021; Skogli et al., 2019) and lastly, trust between the companies (Brost et al., 2018; McKnight et al., 2017; Nicolaou & McKnight, 2006; Perez, 2018; Zeiringer & Thalmann, 2022). The literature on data ownership and access stresses the importance of establishing clear boundaries on who the data belongs to and how the other party is allowed to process the data. Recently, there has been increased focus on privacy and regulations that protect individuals. The General Data Protection Regulation (GDPR) is an example of a regulation that legally binds companies to certain collection and processing frameworks. Interoperability and standard formats are important so that data might be used and exchanged even if the parties involved use different systems. Lastly, trust is highlighted as important to initiate and facilitate the transfer of data between two companies.

## 1.2 Purpose Of This Thesis

Through an extensive search in current literature, the authors have not detected research covering the purpose presented here. On that ground, it is reasonable to state that there is a gap in the literature. In order to fill that gap and increase the knowledge on how a new venture and an established company might work together on innovation based on exchange of data, *the purpose of this thesis is to investigate how new ventures and established companies manage their collaborative efforts to share data and what affects their relationship*. To accomplish this, a representative case will be examined thoroughly, providing insight into both the process of sharing data between a new venture and an established firm, in addition to how this co-evolves with the relationship itself.

## 1.3 Structure of the Thesis

In the following chapter, we will present the theoretical foundation, both existing literature and the theoretical framework that the study utilizes to analyze and discuss findings. Thereafter, the research design and applied method of the thesis are presented, followed by a presentation of the strengths and limitations of the chosen method. The data is analyzed using existing literature and the theoretical framework to reveal relevant findings. Furthermore, the findings and analysis are discussed in depth in order to answer the study's research questions. Lastly, the study's conclusion and contribution are presented, as well as our suggestions for further research.

## 2 Theoretical Foundation

This thesis explores how startups and established companies manage their collaborative effort to share data and what affects their relationship. In order to do so, we have chosen a case consisting of two collaborating companies where the main joint activity is sharing data. To answer our research questions presented in section 2.5, literature on what distinguishes data from traditional resources is presented, along with ways to structure relationships where resources are exchanged between two firms. The chosen literature concentrates mostly on the development of collaboration over time and how this affects data-sharing and vice versa. Additionally, literature on important features and inherent challenges of asymmetry in dyadic relationships is included.

### 2.1 Data as a Resource

Data is a resource that firms are not used to dealing with (Geissbauer et al., 2016; Stefanita et al., 2020), and it can be viewed as a special form of tangible knowledge with distinct properties. In this thesis, we lean on the definition of data made by Levitin and Redman (1998), who suggest that it is concrete and physical manifestations of information stored in, for example, a database. There are distinctive properties of data compared to traditional resources such as financial, human, equipment, plant, raw materials, and knowledge (Levitin and Redman, 1998). Data can be characterized as non-consumable, shareable, and copyable (Levitin and Redman, 1998). Consumable resources will be reduced by usage, which for example, is the case with financial resources (Levitin and Redman, 1998).

Data can become information when it serves a meaningful intention in a given setting, mainly in a decision-making process (Widding, 2007). Combining one dataset with another can provide the basis for widely different insights or products (Longo and Drazen 2016). If more than one user can actively use the resource at the same time, it is characterized as shareable. Levitin and Redman (1998) argue that none of the traditional resources have this characteristic. As knowledge can be used simultaneously by different actors, we would argue that this is in fact a resource that is shareable. That data is copyable refers to the fact that it is relatively easy to replicate an identical unit of data at a significantly reduced cost (Levitin and Redman, 1998).

Data governance is an emerging discipline (Janssen & Zuiderwijk 2012). According to Thomas (2006, p. 31), "Data needs to be governed as it has neither will nor intent of its own. Tools and

people shape the data and tell it where to go. Hence, data governance is the governance of people and technology". Data governance concerns issues of data quality, data management, access rights, and decision rights (Weber & Osterle, 2009). Data quality is one of the most dominant data-sharing barriers (Eckartz et al., 2014). In a digital data context, issues of quality concern how complete, accurate, and reliable a dataset is, as well as its availability and usability (Jayawardene & Indulska, 2013). Data management concerns the issues of collecting, organizing, and storing the firm's datasets (Bloom et al., 2014; Sagiroglu & Sinanc, 2013). Clearly defined access and decision rights become important when actors share data, as privacy threats might arise (Barry and Bannister, 2013). Establishing these rights is often vital to data sharing and is defined by general IT governance and ownership structures (de Beer, 2016; Weber et al., 2009).

## 2.2 Firm collaboration structures

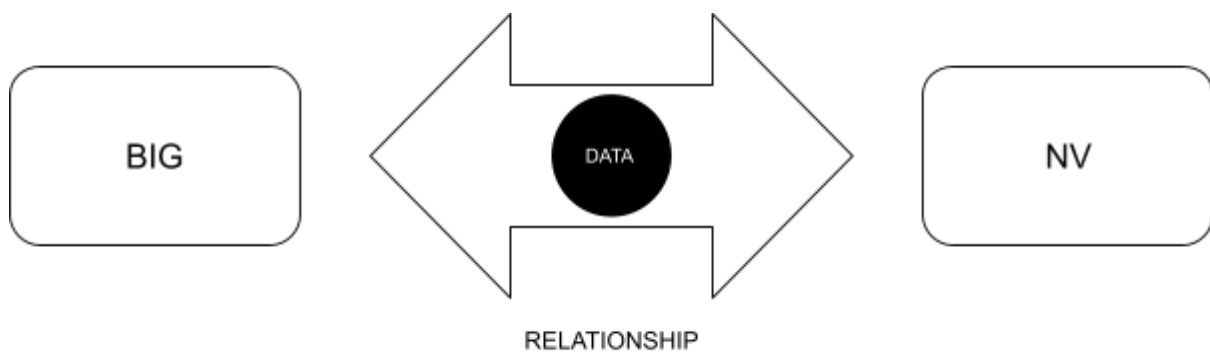
The theoretical field of strategic alliances is broad and there have been numerous attempts at defining the term. Gulati (1998) provides a general definition by describing strategic alliances as the process of sharing resources to jointly develop products, services, or technology. A strategic alliance can take different forms (Das & Teng, 1998; Gulati, 1998; Lavie, 2006; Mody, 1993; Mowery et al., 1996) but is usually based on cooperating firms that invest resources and engages in joint development to create benefits for the alliance parties (Lavie, 2006). Through the governing mechanisms of a strategic alliance, firms can exchange capabilities (Mowery et al., 1996; Gulati, 1999), and knowledge (Lavie, 2006; Mody, 1993; Mowery et al., 1996). Strategic alliances can have positive effects on new ventures because they often entail an opportunity to acquire new capabilities (Baum et al., 2000; Gulati, 1998).

Some of the most prominent subcategories of strategic alliances in the literature are joint ventures, franchises, marketing contracts, licensing contracts, reciprocal trade agreements, and partnerships (Lavie, 2006). Among other factors, these vary in terms of how hierarchical the structure is. On the one side, there are strategic alliances that are governed closely by formal contracts (Mowery et al., 1996) and equity investments (Lavie, 2006). Equity joint ventures are an example of an alliance where the degree of control and hierarchy is high (Mowery et al., 1996). These relationships are often used when firms share technology and development processes (Mody, 1993). Informal strategic alliances are often non-equity-based and less hierarchical (Mody, 1993; Mowery et al., 1996). Mody (1993) states that a governance strategy that allows a high degree of flexibility is preferable when the aim is to share knowledge.

Knowledge is a resource that is hard to define and evaluate, and its inherent uncertainty makes it difficult to encapsulate it in a contract (Mody, 1993).

## 2.3 Relationship development process

Building on stage theory developed by Ford (1980), we aim to analyze how a relationship evolves through the developing and stable phases. The theory is grounded in assessing relationships between active parties with an interaction approach, meaning that one must analyze the episodes in the relationship in addition to analyzing how the parties interact. An episode is any event, such as a social meeting or the delivery of a product, that happens in the relationship. It is argued that any episode that takes place will be influenced by the context of the relationship itself. This influence will work both ways, as the episode itself will also change the nature of the relationship. It is likely that throughout the relationship, the parties will make alterations to their internal processes and products to match those of the other. Ford (1980) illustrates this with the example of a supplier creating a product to fit the needs of one customer. Both the product technologies and the processes of the two companies are important, and consequently, an analysis that focuses on only one of these aspects will render an incomplete picture of the relationship (Ford, 1980). Figure 1 illustrates how the two processes are intertwined.



**Figure 1:** Illustration of the data-sharing process.

With the analysis scheme developed by Håkansson and Snehota (1995), we can analyze the possible effects an episode or a change in the relationship might have. In line with the stage theory, Håkansson and Snehota (1995) argue that a relationship evolves towards mutual orientation and commitment through a process of interaction. The interaction creates and fortifies bonds and connections between the two parties that will in turn influence the relationship. Any change in the relationship process or product will have an effect on the other elements



(Håkansson and Snehota, 1995). To clarify what and how the elements of a relationship are tied together, three layers are proposed. These are activity links, resource ties, and actor bonds. Activity links concern activities that are connected in different ways to those of the other party through the relationship. Actor bonds are the connections between actors in a relationship and affect how they perceive and treat each other. And lastly, resource ties refer to links between any kind of resource that is shared in the relationship. The layers and how they are interlinked are illustrated in Figure 2.



**Figure 2:** Three layers of relationship ties.

Ford (1980) presents five variables that are expected to change as the relationship develops. These are experience, uncertainty, distance, commitment, and adaptation. As experience is made up of the number and quality of interactions actors have with each other, it is likely to increase over time as the actors learn to know each other's norms and values (Ford, 1980). Eventually, this will lead to the establishment of standard ways of working together, which in turn means operationalized procedures and norms of conduct, as well as higher levels of trust. At the beginning of a relationship, the levels of uncertainty are often high as the experience is low. Likewise, as the parties gain experience in the collaboration, the uncertainty is reduced and eventually reaches a minimum level. Proximity in a relationship entails social, geographical/cultural, technological, and time distance, which is all expected to initially be relatively high and diminish as experience grows (Ford, 1980). Additionally, the level of commitment in the relationship is expected to evolve corresponding to experience and special adaptations for the other party are made. Adaptations are made to accommodate the process or product of the other party. In stage theory, it is expected that a relationship will evolve in stages as these factors change over time (Ford, 1980). However, more recent literature suggests that the process is more dynamic and evolves into unpredictable states. Batonda and Perry (2003) emphasize the development in the boundaries between the stages, as well as the explanation for the transition from one stage to another, in which they argue the stage theory misses. An example is the interplay and evolution of different dimensions of proximity which is argued plays an

important role in describing development of inter-firm collaborations and is suggested to be included exploring such relationships (Knoben & Oerlemans, 2006; Steinmo & Rasmussen, 2016).

## 2.4 Characteristics of Asymmetry

In the field of industrial marketing, research on the consequences of relative differences in firm size, measured in terms of the number of employees in the company, between parties in a strategic alliance has given rise to the concept of asymmetry (Johnsen & Ford, 2008). The defining factor of asymmetry is present in almost all strategic alliances. Asymmetry can be generally defined as a situation where one party invests more to meet the joint alliance goals and purpose than its bigger counterpart without getting high returns from it (Munksgaard et al., 2015). The asymmetry affects and influences the collaborative process and the alliance outcomes (Chen & Chen, 2002; Johnsen & Ford, 2008; Munksgaard et al., 2014; Munksgaard et al., 2015), although it does not necessarily hinder the cooperation (Aaboen & Aarikka-Stenroos, 2017). Grounded in stage theory Munksgaard et al. (2014) argue that one can divide the lifecycle of a strategic alliance into three stages, namely the exploratory, developing, and stable stages. It is further stated that asymmetry is particularly noticeable in the development stage (Munksgaard et al., 2014).

Given the nature of a new venture and its inherent lack of resources, it is reasonable to assume that asymmetry is an important part of its relationships with other firms. The issue of asymmetry in interfirm relationships is complex and can be described in terms of underlying characteristics (Lee & Johnsen, 2012; Johnsen & Ford, 2008). In this study, we have chosen to use the typology built by Johnsen and Ford (2008) and Lee and Johnsen (2012) as a component in the frame of reference on which we build our analysis. Johnsen and Ford (2008) laid the foundation by developing a set of factors consisting of particularity, cooperation, conflict, intensity, interpersonal inconsistency, and power/dependence. Because of its important impact, Lee and Johnsen (2012) chose to add to the set by including the issue of trust in strategic alliances. This constitutes a comprehensive set of relationship characteristics, making it a suitable foundation on which to analyze the complex asymmetric relationship between alliance partners. The characteristics mentioned above are summarized and defined in the following table:

CHARACTERISTICS	DEFINITION
<ul style="list-style-type: none"> <li>• <i>Particularity:</i></li> </ul>	<p>to what extent does the relationship demand specialized efforts and resources? Particularity reflects how important a relationship is to the company (Lee &amp; Johnsen, 2012).</p>
<ul style="list-style-type: none"> <li>• <i>Cooperation:</i></li> </ul>	<p>is the relationship characterized by divided or cooperative collaboration to reach joint goals (Lee &amp; Johnsen, 2012; Johnsen &amp; Ford, 2008)?</p>
<ul style="list-style-type: none"> <li>• <i>Conflict:</i></li> </ul>	<p>how and to what extent does disagreement affect the relationship (Johnsen &amp; Ford, 2008)?</p>
<ul style="list-style-type: none"> <li>• <i>Intensity:</i></li> </ul>	<p>maps the extent of contact as measured by the number of employees involved and the frequency of interaction and resource exchange between the parties (Johnsen &amp; Ford, 2008).</p>
<ul style="list-style-type: none"> <li>• <i>Interpersonal inconsistency:</i></li> </ul>	<p>the expectations and interest on a personal level (Johnsen &amp; Ford, 2008).</p>
<ul style="list-style-type: none"> <li>• <i>Power / Dependence:</i></li> </ul>	<p>where one company can persuade the other parties to, coercively or cooperatively (Lee &amp; Johnsen, 2012), do something they would not otherwise do (Munksgaard et al., 2015).</p>
<ul style="list-style-type: none"> <li>• <i>Trust:</i></li> </ul>	<p>concerns the confidence companies hold that the other parties will follow formal and informal agreements (Johnsen &amp; Ford, 2008).</p>

**Table 1:** Characteristics in asymmetric interfirm relationships.

Although new ventures may benefit significantly from a relationship with an established firm, there are significant risks and challenges involved (Prashantham & Birkinshaw, 2008; Munksgaard et al., 2014; Munksgaard et al., 2015). These challenges present themselves in three main groups, namely lack of access and attention; different long-term objectives; and asymmetry in resources (Prashantham & Birkinshaw, 2008).

When dealing with a larger counterpart, a new venture may face a lack of access and attention, making it difficult to identify and gain attention from key decision-makers in the established firm (Prashantham & Birkinshaw, 2008). Identifying who you need to speak to is difficult because it involves navigating the likely complex organizational structure of an established firm. Even after the right person has been identified, a hurdle remains, as getting the attention of this person can be a problem. To illustrate, Prashantham & Birkinshaw (2008) explain that decision-makers in one firm often devote their attention to their respective equals in other established firms and that bureaucratic bias holds them back from accepting new ideas. The process of getting access and attention is further complicated by the frequent change of roles in established firms (Prashantham & Birkinshaw, 2008). When people are transferred from their original roles, relational ties are broken and must be rebuilt. This means that the new venture must again devote its relatively limited time and resources to maintaining its connection to the established firms. Consequently, the lack of access and attention increases the levels of confusion and uncertainty in the relationship.

The second set of challenges falls under the category of different long-term objectives. Goal setting plays an essential role in business relationships, given that collaboration is often seen as a means of reducing uncertainty, acquiring resources, and solving problems (Hardy & Phillips, 1998). Large established firms have predetermined goals, and meticulously prepared strategic plans and operating processes (Prashantham & Birkinshaw, 2008). New ventures, on the other hand, are usually more agile. As uncertainty and ambiguity dictate their efforts to plan the future, they operate with a much shorter time axis. Consequently, new ventures and established firms often have different approaches to managing their relationships and different objectives (Prashantham & Birkinshaw, 2008). Munksgaard et al. (2015) state that collective interest, defined as the conjoint self-interest of both parties in a relationship, is an essential step in establishing effective collaboration. "Firms will join their resources with the aim of each achieving their own economic goal for the relationship, and these goals will motivate firms to jointly act to achieve better relationship performance" (Munksgaard et al., 2014, p. 3). However,

the interests of the larger party tend to influence the collective interest in asymmetric relationships (Aaboen & Aarikka-Stenroos, 2017; Corsaro et al., 2000; Medlin, 2006; Munksgaard et al., 2015). As a result of fear that the larger firm might take the majority of the created value, tension and distrust may arise.

Lastly, resource asymmetry presents a hurdle when developing effective relationships between new ventures and established firms (Prashantham & Birkinshaw, 2008). A large firm with an established market position has typically clearly defined tasks and roles for their employees, well-defined processes, and specialists to complete given tasks (Prashantham & Birkinshaw, 2008). In contrast, a new venture has not yet had the time to build a reputation, acquire financial resources, or develop human resources. It is not uncommon for an employee in a new venture to have tasks that span multiple areas of responsibility, and processes are characterized by informality. Consequently, there are usually no clear counterparts for the employee in the established firm to communicate with, and connection points become ambiguous and blurry (Prashantham & Birkinshaw, 2008). If a company has no previous experience working with new ventures, this can lead to misunderstandings and conflict. Moreover, Prashantham & Birkinshaw (2008) argue that a new venture and an established firm are likely to have different mindsets, norms, and working cultures, creating even higher hurdles for the two firms to overcome.

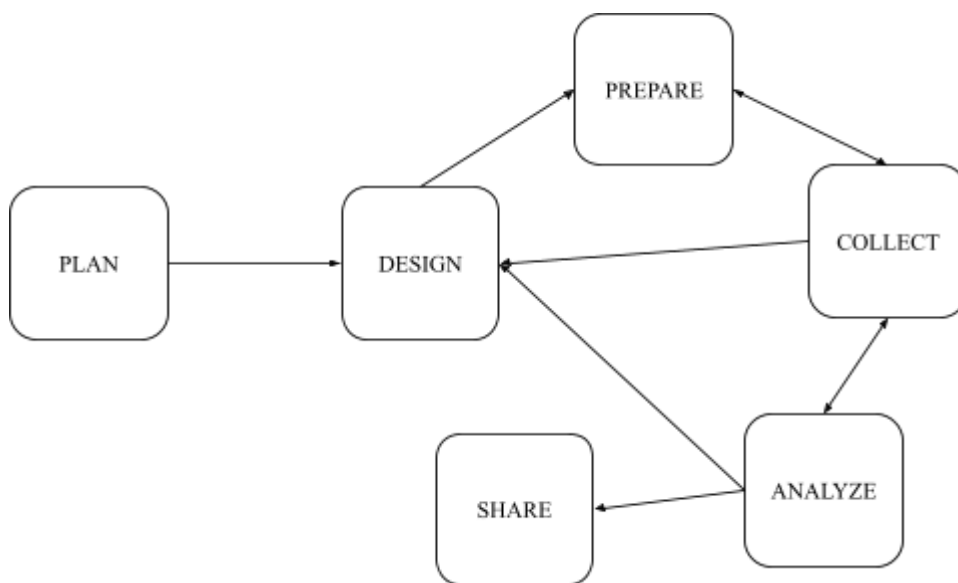
After deconstructing the information extracted from the literature, the authors are left with the following research questions (RQ) in order to achieve the proposed purpose of investigating how new ventures and established companies manage their collaborative efforts to share data and what affects their relationship.

*RQ 1: How does the collaboration and product processes affect each other and how does it evolve over time?*

*RQ 2: What relational factors are important in the collaboration?*

### 3 Methodology

In the following section, the chosen research methodology that is utilized to address the purpose of the study will be presented. Further, the reasoning behind the data collection method and the chosen data analysis will be explained. Lastly, the strengths and limitations of the chosen research methodology will be discussed and elaborated on. The linear but iterative process of creating this master's thesis is outlined in Figure 3, inspired by Yin (2003). From the figure it is evident that the research strategy followed a cycle starting with the purpose and original research questions, and then moving between the design preparation to collecting data and analysis, until the authors had a clearer understanding of what the study should and should not include.



**Figure 3:** Research strategy.

#### 3.1 Research design

A project thesis was carried out by the authors of this master's thesis in the autumn of 2021. The project assignment investigated what form of cooperation a company will choose when the purpose is to exchange its resources with other companies. Specifically, the project thesis evaluated five forms of collaboration: ecosystem, cluster, partnership, alliance, and network. The project thesis analyzed the different types of collaboration to find what the existing literature says about how firms organize their collaborative efforts to share resources across firms. Although this master's thesis is not a direct continuation of the project thesis, it gave the authors knowledge of what must be the basis for enabling a collaboration where resources are shared between companies. It was also revealed that there is not much existing literature on the topic of sharing

data as a resource; at the same time, sharing data between businesses is a phenomenon that is only becoming more and more important for Norwegian companies (Larsen & Lervik, 2017). We detected this gap in the existing literature throughout our literature review.

This study has examined how an established company shares data with a new venture; the study employs a qualitative approach which allows for the interpretation of experiences that are difficult to measure (Dalland, 2012). Qualitative research takes the perspectives and interpretations of participants as starting points (Flick, 2015), which the authors believe is necessary to gain a thorough understanding of how a collaboration has evolved over time. It will allow the authors to get detailed descriptions of situations that might have been important in the case. Thus, to answer the purpose of the study *to investigate how new ventures and established companies manage their collaborative efforts to share data and what affects their relationship*, a qualitative single case study design was applied. In this thesis, we both use theory to shape the assignment and attempt to build on what already exists, meaning that we follow an abductive approach.

### 3.3.1 Single-case study

In order to investigate the phenomenon of a collaboration where data as a resource is being shared, the authors chose to conduct a case study. A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident (Yin, 2003). The question form of the purpose contains both “how” and “why”- formulations. Additionally, as the nature of the research focus is complex and involves a high number of variables, the degree of control we can hope to achieve is low and the focus on contemporary events is high. These conditions indicate that a case study is the most suitable research method. The main object of case studies should be to provoke thought and new ideas rather than to poke holes in existing theories (Siggelkow, 2007).

As previously stated, there are profound gaps in the literature regarding sharing data as a resource, along with the phenomenon becoming more and more prominent on a global scale. Hence, we have chosen a single-case study for this research. When performing a single-case study, one gets a more in-depth investigation of the processes and collaboration within a firm, and can provide a wide range of information and an understanding of the dynamics existing within single settings (Siggelkow, 2007; Eisenhardt, 1989; Yin, 2009). Capturing multiple levels of

analysis allows the authors to reach a deeper level of contextual insight into the complex factors of the phenomenon, and achieve what Siggelkow refers to as “a talking pig”, where one convinces the reader that the conceptual argument is plausible and uses the case as additional (but not sole) justification for one’s argument (Siggelkow, 2007). A single case study gives the opportunity of providing descriptions of contemporary events that will make it possible to get an in-depth understanding of the nature of the case, how the relationship is managed and how it has evolved (Halinen & Törnroos, 2005).

### 3.3.2 Selection of case

We considered purposefully selecting the case to be studied in the research as the most appropriate approach. Randomly picking a case could have led to an unrepresentative sample (Flick, 2015). We initially started the case selection process by constructing selection criteria; the companies needed to be 1) an established Norwegian company or new venture which had 2) data as main resource of exchange with another company and 3) were in an ongoing process of sharing or receiving data to or from another company.

**Table 2:** Selection criteria for case selection.

SELECTION CRITERIA	REASON
Established Norwegian company or new venture	Accessibility
Data as main resource of exchange with another company	Investigating the specific resource’s effect on the relationship development
Ongoing process of sharing or receiving data to or from another company	Investigating the relationship development, not the relationship initiation

Boundary setting is necessary for analytical purposes, for defining the case, and what belongs to it and to its context (Halinen & Törnroos, 2005). Initially, we considered whether it was appropriate to choose a case company that is sharing data internally or between multiple companies. To gain an understanding of the issue a Project manager at the Norwegian Cognitive Center (NCE) was contacted, who works with accelerating business adoption and



commercialization of Artificial Intelligence-technology in Norway. The previous work experience and knowledge about data sharing between Norwegian companies provided valuable insight and network that was used as a starting point in the study. The project manager was presented with the purpose for the study and were requested if they had any companies in mind that would be relevant for answering our research questions, given our criteria. The Project manager pointed out that the collaboration between two companies named BIR (one of Norway's leading waste management companies) and Carrot (new venture creating insight by collecting data as waste is thrown) would be an exciting collaboration to analyze. The authors then began searching online for detailed information on BIR and Carrot's collaboration, team members, their applied technology, and product development. The collaboration between BIR and Carrot fit the selection criteria and could thus be an applicable and interesting case of examination especially due to the new venture in the beginning had developed their entire product based on the data received from the established company.

### 3.2 Data collection

The purpose of the data collection was to provide a foundation of information to which a comprehensive understanding of the phenomenon of the selected case companies' collaboration to exchange data as a resource could be built. Semi-structured interviews were chosen as the primary source of collected data. Secondary sources of data information were documentation as well as expert interviews. This was done to aid understanding of the phenomenon and achieve triangulation. Before the interviews were conducted, the interviewees were informed about how the data would be recorded and stored as well as how long the information would be stored.

The data collection process began by using the parts of the relevant theory outlined in Chapter 2 to identify what was to be investigated and what the main focus in the interviews should be. Based on this, the questions and order of the questions were formed into an interview guide that was developed and utilized through the interviews. A total of seven interviews with relevant informants from the chosen case companies were conducted, and expert interviews were done as a secondary data source. The interviews, also referred to as qualitative interviews, were conducted with open-ended questions not predetermining the direction of the conversation or what the most important topics would be (Flick, 2015). Before each interview preparations were made, including gathering background information from online sources, scheduling the interview, and deciding on roles. One of the authors would be in charge of conducting the interview while the other took notes and had an observing role. The interviews were immediately transcribed

before an initial analysis was conducted. The data collection protocol followed these general steps:

**Table 3:** Step-by-step; data collection protocol.

1.	Find out what was to be investigated based on theory
2.	Create the interview guide
3.	Preparations
4.	Data collection from online and documentation
5.	Transcription

### 3.2.1 Interviews

Interviews are the mainstay of the qualitative study (Savin-Baden & Major, 2012) and are the most common approach to collecting data in such a study (Kvale, 2008). Fylan (2005) maintained that interviewing is one of the most exciting ways to collect data. She defines semi-structured interviews as interviews that are simply conversations in which you know what you want to find out - and so have a set of questions to ask and a good idea of what topics will be covered - but the conversation is free to vary, and is likely to change substantially between participants. This interview form has the advantage of flexibility, enabling in-depth discussions that allow the authors to extend their knowledge on relevant matters (Flick, 2015). All interviews were conducted through the same digital platform, namely Microsoft Teams. We used Microsoft Teams as an aid in recording the interviews and collecting the data.

The interview guide was built up on a series of open-ended questions allowing the respondents to share their personal reflections and interpretations. This was done to minimize the influence the authors could have on them (Flick, 2015). The authors based the structure of the interviews on Tjora's (2017) three phases; *warm-up*, *reflection*, and *wrap-up*. First, the interviewees were given a brief personal introduction of the authors, and the themes of the master's thesis were presented. Then the interviewees were asked general questions, such as their educational background, previous working experience, and their role of involvement in the collaboration. This introduction was included to make the interviewee feel at ease and to establish trust early in the interview. Following the *warm-up*, the authors started asking more direct questions regarding the main

themes for the interview, such as: "The collaboration," "Consideration of risks," "Practical process of sharing data," and "Change and outcome." These more specific questions such as "How often are you in contact with [the other company]?" served as focus questions to make sure that the interviews did not steer off topic.

Both authors were present in every interview. This was done to be able to split the interviewers responsibilities between us. One took the lead in asking questions while the other took notes, observed body language and asked the informant relevant follow-up questions. The primary interviewer took the lead in transcribing the interviews, which was a task that was split equally between us. The intention of letting the primary interviewer transcribe was because the interviewer was often focused on maintaining a good structure during the interview and could, consequently, miss the essence of what the informant was conveying. Throughout the interview, both the primary interviewer and the one who took notes asked follow-up questions to clarify and make the conversation more organic and fluent (Jacobsen, 2016). This also led to discovering new perspectives and capturing multiple levels and aspects regarding the collaboration (Eisenhardt, 1989). The first interview was the most "stuck to the interview guide," while we gradually became more enlightened about the themes and became more used to the "researcher's role." The interview guide was adjusted as the authors found emergent themes and learned more about the case. Eisenhardt (1989) states that this can help researchers focus on the questions that provide the most value to the study. Before concluding the interview, the interviewees were asked if they had anything else they wanted to add. Lastly, the authors requested to conduct a brief follow-up interview if any additional information was required for the analysis. The interview guide is included in Appendix A.

In order to enhance readability, quotes from interviewees are intertwined with the text of the thesis but highlighted by using italics and quotation marks.

### 3.2.2 Selection of respondents

A manager from BIR was contacted via email, and facilitated contact with other key informants at BIR who could be relevant for the study, which allowed for new informants to be contacted. The primary contact has also been interviewed as this person has been involved in the collaboration for a long time and is one of the decision-makers in BIR regarding this specific collaboration. A similar approach was taken with the new venture. A member of the senior management was contacted first, and was also interviewed as this person was highly involved in

the collaboration and worked closely with the exchange of data. To both the first interviewees from BIR and Carrot, the authors emphasized that they wanted to interview employees who had decision-making power in terms of contractual agreements, setting commercial terms & conditions, or participating and delegating operational responsibilities. It was also important for the authors that they interview employees who were not brand new to the collaborations, as that would mean they would have limited experience with it. In the new venture, this proved to be a little challenging as most of the employees were hired only a couple of months before the study began. To tackle this, the authors decided to interview both the relatively new employee and supplement with an extra interview from an employee who had been hired 10 months prior to the study. As a consequence of this, three employees from the established firm were interviewed compared to four at the new venture.

Through several of the interviews, names of other employees emerged who, in one way or another, were key personnel in the collaboration, which led to connecting us to all the key informants. In the seventh and final interview, we came to a point where we had received many overlapping reflections and answers to our questions. As we had also interviewed all potential staff members that had the capability to provide valuable insights and relevant knowledge about key aspects of the relationship among the collaboration, we considered the sample to be solid and representative in order to be able to answer our research questions. All informants are presented in the following table with anonymized names and titles. It is emphasized that the informants are of the highest strategic and technical relevance in the companies within their respective business units.

**Table 4:** List of interviewees with information about what company they work, the code name used for them in the rest of the thesis, their main work responsibilities and the duration of each interview.

**The interviewees**

<i>Company</i>	<i>Informant code name</i>	<i>Infomants position description</i>	<i>Duration of interview</i>
<i>BIR</i>	<i>B1</i>	<i>I am a data controller - my job is to follow up that we get the data we need</i>	<i>60 min</i>
<i>BIR</i>	<i>B2</i>	<i>I am a project leader - I work with business</i>	<i>45 min (follow up questions)</i>

		<i>development and digitization</i>	<i>per email)</i>
<i>BIR</i>	<i>B3</i>	<i>I am a process consultant - I work with data flow from modern waste facilities</i>	<i>53 min</i>
<i>Carrot</i>	<i>C1</i>	<i>I am in the senior management team - I try to make sense out of the data for additional insight</i>	<i>60 min</i>
<i>Carrot</i>	<i>C2</i>	<i>I am in the senior management team - I work with the day to day operations at Carrot</i>	<i>45 min (follow up questions per email)</i>
<i>Carrot</i>	<i>C3</i>	<i>I am in the senior management team - I work with the product development</i>	<i>60 min</i>
<i>Carrot</i>	<i>C4</i>	<i>I am in the senior management team - I work with operations and partnerships</i>	<i>50 min</i>

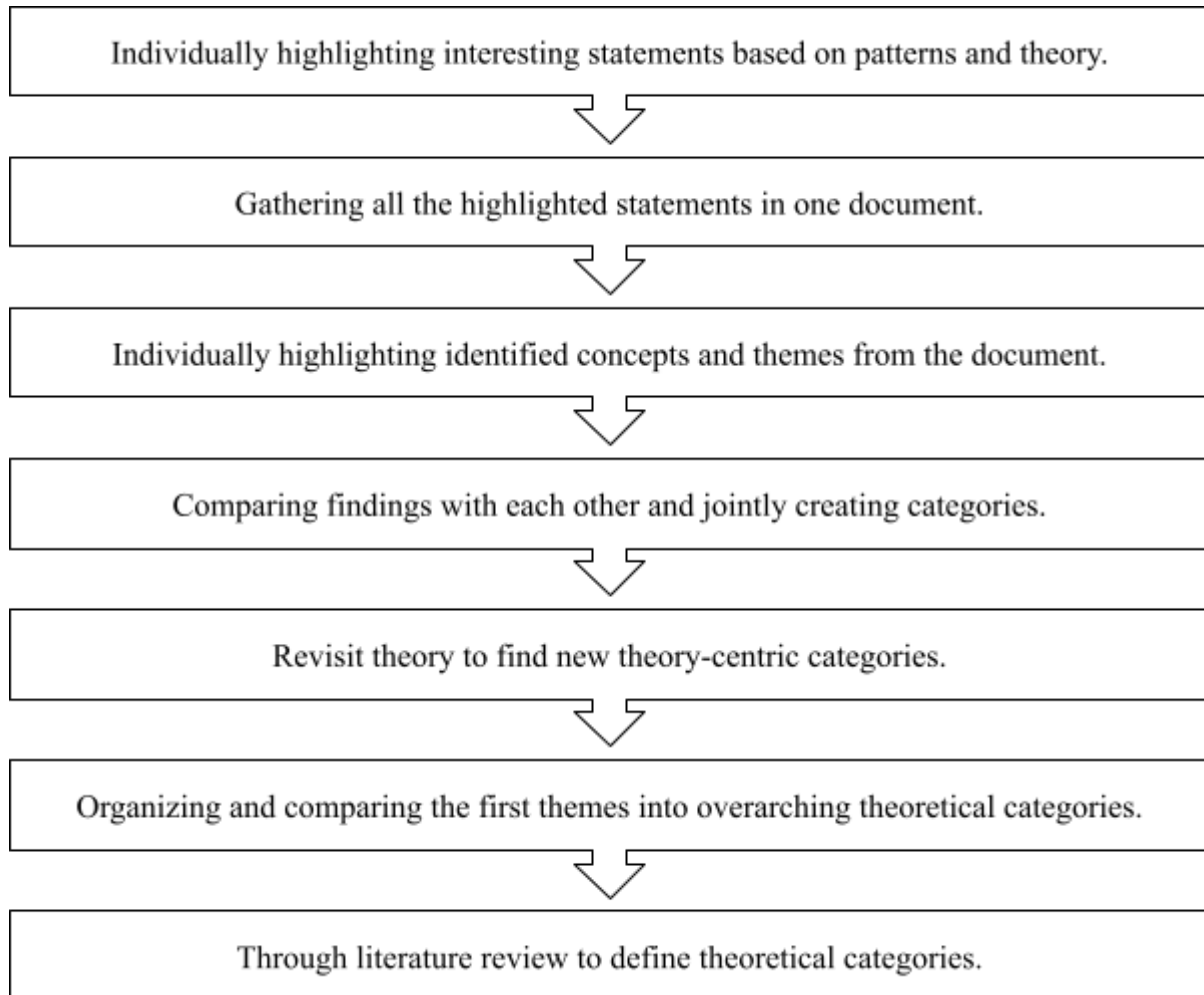
### 3.2.3 Secondary data

Reviewing documents is a common data collection method to utilize in qualitative studies (Kvale and Brinkmann 2015) and refer to qualitative documents such as reports, newspapers, or websites in the analysis. Some informants have provided information about reports, websites, and other documents that have served as supporting literature throughout the study. These documents have been analyzed and have functioned to validate what the informants have said throughout the interviews. The documents were organized into company-specific folders containing the transcript, notes from the interview, relevant articles, and other information relevant to the collaboration. As a result, all the data from each company were thoroughly examined and structured and served as a sound basis for the case analysis.

### 3.3 Data analysis

Our obtained data was collected through semi-structured interviews, which is considered an appropriate approach for a qualitative study (Gioia et al., 2013; Jacobsen, 2016). Aligned with the Gioia methodology (2013), our recorded interviews were transcribed, systemized, and coded. In a case study, the inherent unstructuredness of the data gathered from the semi-structured interviews makes data analysis and building theory one of the most challenging tasks (Eisenhardt, 1989). As

a result of keeping the process open and informant-centric in the early stage, Gioia, Corley, and Hamilton (2013) describe this phase as overwhelming. Figure 4 shows an illustration of the process of coding the data that was gathered.



**Figure 5:** The data coding process.

The analytic approach that was utilized was inspired by the Gioia methodology (2013), which involves a line-by-line analysis of the data, which is then developed into categories and related sub-categories to form the basis of the theory. Gioia et al. (2013) explained that this is an intricate process of reducing raw data into concepts, which has important implications for inductive analyses (Jacobsen, 2016). It involves the use of explicit coding and analytic procedures, which are designed to assist the researcher to generate a theory that is integrated, consistent, close to the data, and plausible (Jacobsen, 2016).

The Microsoft Teams live transcription solution supported us by functioning as a solid starting point, but the text nevertheless needed extensive processing. Having recorded all interviews made it possible for us to listen to them repeatedly and get the text wholly aligned with the content in the interview. After completing each transcription, we individually read through them and highlighted findings relevant to the research questions, resulting in a structure of 4-5 themes with related sub-themes. The initial evaluation on whether or not a statement was of interest was based on patterns that had become evident through the process of transcription and re-reading the interviews, along with the initial theoretical findings involving challenges that usually arise in relations where data is exchanged. All of the highlighted findings were gathered in one document. From this document the authors individually developed a list of identified themes and sub-themes. Next, the themes and sub-themes were presented on post-it notes to each other with explanations regarding why they were necessary to analyze further. At this point, the authors found it necessary to refer back to theory to discover more about how a dyadic relationship evolves. The findings from this second look at the literature were then used to create theory-centric themes. The post-it notes were then connected and sorted and led to the following themes; "The sharing process" "Relationship organization" "Relationship development - Episodes and effects" and "Asymmetry." Lastly, the transcripts were re-read to ensure that nothing was omitted and that all relevant findings had been considered.

### 3.4 Reflection of the Methodology

Trustworthiness is critical when evaluating the worth of data acquired for a qualitative research paper. According to Lincoln and Guba (1985), the trustworthiness of a study can be evaluated from the four factors criteria: credibility, transferability, dependability, and confirmability. In the following section, we will in light of these criteria reflect upon the quality of the study and the roles of the researchers, the benefits and disadvantages of using the case study, and the interview method used in the study. Finally, there will be a discussion about how the aspect of ethics has been considered throughout the study.

*Credibility* depends on whether or not a reader considers the findings credible, meaning that they deem the determination of the social reality by the researcher as valid (Lincoln and Guba, 1985). There is no doubt that the quality of the researchers behind a study contributes to influencing the study's credibility. There is much potential for improvement in this study, mainly explained by our lack of former research experience. Since both authors are fresh as "researchers" and have not conducted a similar study before, this will leave its mark on the totality. By choosing several data

collection methods and sources, the authors triangulated the collected data. This entails that multiple viewpoints were included and by doing so the credibility of the study was strengthened.

*Transferability* deals with whether the results and findings from the study can be transferred to other areas than of focus in the study (Lincoln and Guba, 1985). Since a qualitative method was used for this paper, transferability is an empirical issue since the findings may not hold to other contexts or even the same context in another time (Bryman, 2016). Furthermore, a single-case study was selected for strategic and convenience reasons. Since this is obviously a small sample, this can weaken a generalization to a larger population (Yin, 2014). Nevertheless, though the constellation of other collaborations might be different, we believe that the study can contribute to greater insight into the specific field of research.

*Dependability* describes whether or not the data collected can be considered consistent and can be replicated and repeated over time (Lincoln and Guba, 1985). As the data analysis follows concepts from thematic analysis, thus relying heavily on our interpretations and preferences in the data structuring, the research may be challenging to replicate fully. However, by thoroughly elaborating our research methods and enclosing appendices, we have aimed to increase dependability.

The degree of *confirmability* addresses whether the study's results reflect the research itself and not from the researcher's subjective thoughts (Lincoln and Guba, 1985). The authors have tried to accommodate this by both authors being present in the interviews and by systematically following an interview guide. Furthermore, the authors went through the interviews afterward to double-check that they both had understood the informants sufficiently. That enabled us to debrief and check each other's biases after each interview. At the same time, it is essential to point out that the authors let the informants speak freely to a large extent to capture what aspects of the topic they found interesting and relevant to answer our questions. During the conversations, we asked control questions if there was any uncertainty regarding responses from the interviewees. The advantage of a digital interview was that we got hold of informants who it might have been difficult to arrange an interview with through regular meeting activities due to limitations when it comes to location. Although we experienced this form of the interview as reasonable, it is essential to have reflected on whether this form of the interview can be staccato and make follow-up questions challenging without interrupting more than it would be with physical



meetings. The digital form of the meeting also ate up interview time as the quality of the conversation depended on coverage, sound, and image quality.

### *Ethics*

During the interview process, the authors have pursued to communicate clearly to the informants that they should represent themselves and their personal experiences and opinions in the collaboration, not as representatives for the companies they work in. In connection with the recruitment and conducting interviews, all informants received an information email in advance where the purpose of the study was presented, what participation would entail, and their rights as informants. During the interviews, the interviewees once again were informed about the study's purpose and implementation, as well as information regarding how audio and video material would be treated after use. The informants are anonymized to the best ability, especially their personal names and exact working positions. Nevertheless, since there is little sensitive information in this study, we have chosen to include key information about the companies to increase the thesis's overall credibility without the informants' identities being exposed. We consider that this study has taken sufficient account of ethical aspects while providing enough information to answer the research questions.

## 3.5 Limitations of the Study

This section elaborates on the limitations and weaknesses of the applied method and its execution. All limitations must be considered potential sources of influence on the study and have been taken into account to the best of the authors' abilities.

As the intended scope of the study was to investigate a collaboration that initially started seven years ago, this might affect the informant's ability to recall former situations nuanced and with a high degree of accuracy (Yin, 2017). We interviewed all employees working closely with the relationship of the collaboration to reduce the risk of missing essential data for the study. Nevertheless, informants who previously worked in BIR, whom we did not interview, potentially would have strengthened the analysis by giving insights into the incredibly initial phase of the collaboration.

As a result of all interviews being conducted in Norwegian as it was the respondents' mother tongue, then transcribed in Norwegian, followed by it being translated into English to conduct the analysis, the authors acknowledge that some slight nuances might have been lost in translation.

One of the potential problem areas for us using the data-collection methodology of semi-structured interviews was keeping at bay our prior knowledge and any preconceived biases we might have on the topic during the interviews, as we unconsciously gathered and interpreted the data we thought was interesting, e.g., the line-by-line analysis of the transcripts and interview transcripts. This is a threat to research as this kind of study is characterized by researchers keeping an open mind and letting the data speak for itself. To handle this potential threat to the study, we strived to stay informant-centric during the analysis, isolate our perceptions, and enforce our data as the only representation of the phenomena, as well as continual verification and triangulation processes during the analytical phase of the research. Further, the interview guide facilitated an open approach to the data gathering, emphasizing open-ended and follow-up questions. While categorizing the collected data, there was also a risk that we aimed at making the findings fit with existing theories rather than freely explore the actual meanings collected from the interviews. There is a possibility that we have been suspected of this interpretation bias and is, therefore, something to consider as a potential limitation of this study.

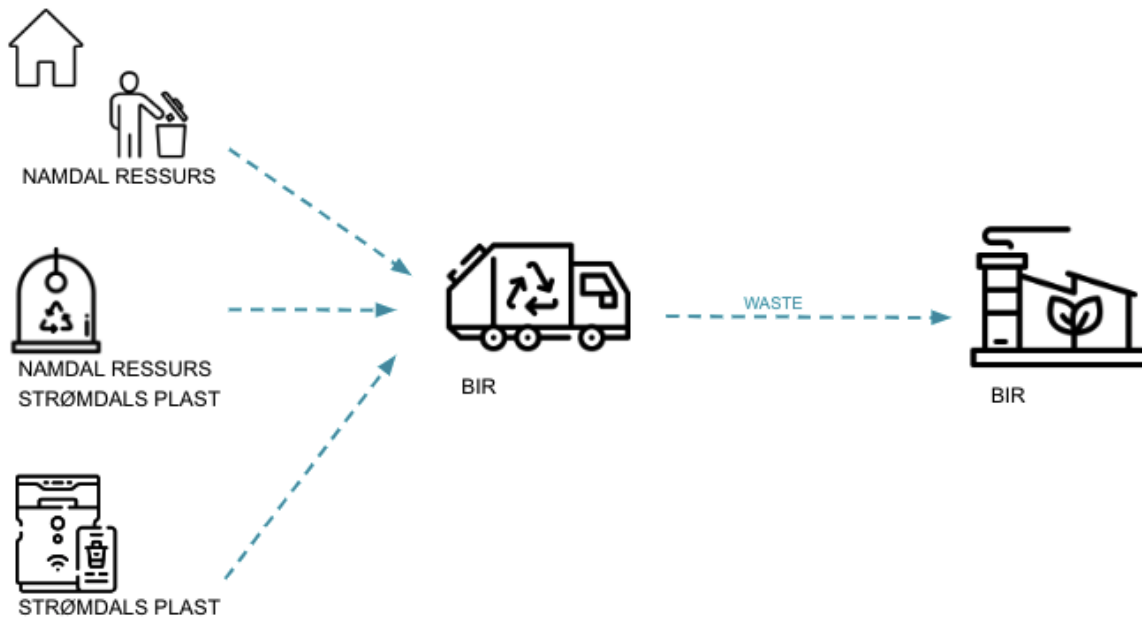
## 4 Findings and Analysis

### 4.1 Case specific information

#### 4.1.1 BIR

BIR AS (Bergensområdets interkommunale renovasjonsselskap) is a waste management company owned by seven Norwegian municipalities, namely Askøy, Bergen, Bjørnafjorden, Kvam, Osterøy, Samnanger and Vaksdal. The company was founded in 2002, but their history reaches as far back as 1881. As of 2019 they totaled over 400 employees and an annual turnover of 1 013 million NOK. BIR has been delegated the task of handling waste from its seven owning municipalities with a total of 358 857 inhabitants, and has a monopoly on delivering these services. Additionally, they have subsidiaries that provide solutions for waste management in the private sector and are thus exposed to competition in this sector (BIR, 2022).

Waste management consists of several steps from origin to final disposal or recycling, including collecting, transportation and proper waste treatment. Different types of waste call for different methods of management. For example, in the municipality of Bergen household waste must be sorted and paper, plastic and food waste are disposed of separately. In the waste management sector these types of waste are called “fractions”. Additionally, disposing of the waste might look different depending on where you live. Some apartment buildings have regular waste bins while others have automatic shoots. Needless to say, as waste disposal practices are not uniform among households there are numerous suppliers delivering different hardware solutions to collect residual waste. After it has been collected, the waste must be transported to waste management facilities. Some types of waste require inhabitants to transport it on their own, although most is transported by waste trucks. In the waste management and incineration plants, waste can be properly treated to either be disposed of or recycled for further use. BIR provides services within collecting, transporting, and processing waste. Although they provide services for collecting waste, most of the hardware solutions are not owned by them but by third party suppliers. Figure 5 illustrates these processes.



**Figure 5:** Illustration of the value chain in the waste management industry in Bergen.

The hardware suppliers of solutions to collect waste are also the actors that collect data about which residents discard what kind of waste, and the amount of waste discarded. In the waste management sector, every supplier has different software solutions to store and distribute data. The practical repercussions of this is that for every supplier BIR wants to collect data from there are different data formats and Application Programming Interfaces (API) to connect to.

In 2008 it was decided that a centralized underground waste system was to be built in Bergen. The system called “Bossnettet” is owned by BIR and built and operated by Envac, a supplier of automated waste collection systems. “Bossnettet” consists of a network of underground tubes where waste is pushed through at speeds of up to 80 kilometers per hour. Inhabitants dispose of their waste at different drop of shoots opened with an access tag. In Bergen the business model for waste disposal is a flexible fee model commonly called “pay as you throw”. This model entails that an inhabitant pays for the amount of waste that he or she disposes of, ensuring that the ones that have the highest consumption also pay more.

*“If they use more they have to pay more. In that way, it is the people that are polluting the most that pays the most.”*

- B2

The pay-as-you-throw business model entails that the inhabitants pay for the number of times the access tag has been used to open a shoot. The data is collected by Envac and used by BIR to create the invoices sent to inhabitants of Bergen municipality. In the early stages of the project conceptualization, BIR saw the need for a software solution that could stand between the data management system used by Envac and the customer system used by BIR. Like a translation program translates text from one language to another, the solution would translate data formats to one format BIR uses as a standard internally. They assigned one of their computer engineers and consultants from Norconsult the task of creating this system that would fetch data from their supplier and format it in the way BIR required. Eventually it became clear to them that this solution could be used for more than just that purpose. This was the beginning of Carrot.

*“We thought that this is something that has other uses than just ‘bossnettet’”.*

- B2

*“It was built internally at BIR, and then at some point in time we realized that a lot of other actors started to show interest in the technology. That is when we chose to try to commercialize the solution.”*

- B2

#### 4.1.2 Carrot

One of the consultants working on the case recognized that the insight one could generate from the data could have a significant and unique value. He had previously worked on multiple cases within the waste management sector as a consultant, and knew the industry well. The interviewee stated that he had often found himself puzzled by the lack of digitization in the industry, especially because it was so evident that it was needed. However, if BIR were to create and maintain the solution themselves, they would have had to build a new team and hire a significant number of new employees. Carrying the cost of this would not be profitable. Additionally, BIR reported that the solution was mainly created by the software engineer alone, and their reliance on him to maintain the system posed a significant risk to the project. The software engineer was almost 70 years old and planned to retire within a couple of years. In 2017 BIR created a joint venture together with a venture capital company called New&Company. They called the joint venture WasteIQ.

*“Eventually, it became clear to BIR that this was something that could be separated into a stand-alone company, the software that our engineer developed, and that it could be interesting for other companies. So that is why WasteIQ was founded.”*

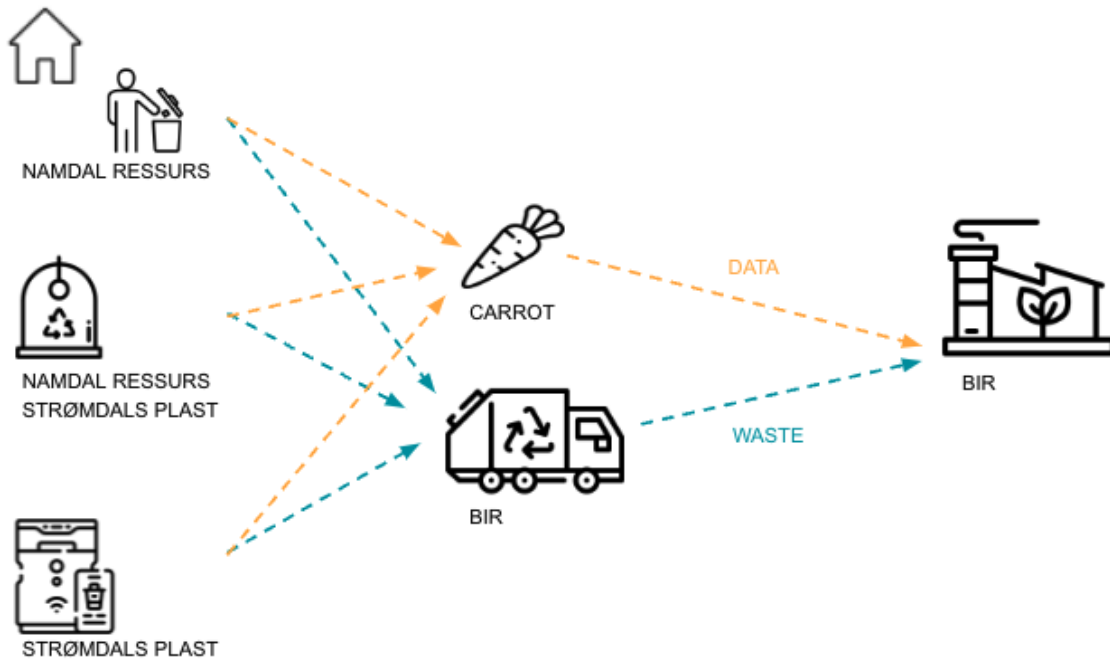
- B1

At this point BIR owned 60% of the new venture and had representatives on the board. The team members were employees from New&Company and BIR, and BIR was their only customer. The team that started working at the new venture re-wrote the code and developed a new module but maintained the same business model and idea that originated in BIR. WasteIQ gradually gained independence, and, among other activities, their team moved out of BIRs offices and settled in Oslo. The transition was accentuated in 2021 when the company underwent an extensive rebranding, including a name change to Carrot. Carrot expanded their workforce, and the team currently consists of 16 team members who sit in their respective offices.

Besides the operational insight service that initially was developed, Carrot expanded their value proposition to a “new product”, which included environmental, and behavioral insight. The primary market for this product was real estate; shopping centers, hotels, or other building segments where Carrot was in use. However, this product is currently not used by BIR nor the eight other public and private waste management companies in Norway that use Carrot's operational insight service. For the time being, Carrot is focusing on scaling and expanding both of these services, with an aim to tackle the world's 2 billion waste problem (Carrot, 2022).

#### 4.1.3 The Data Flow

Carrot connects inhabitants to the companies. They gather data from the waste collection suppliers about what household disposes how much waste and of what fraction. This is then normalized and distributed to their clients, the municipalities or businesses, creating a supply chain of three levels. The data flow between these actors are illustrated in Figure 6. Carrot thus serves as a buffer and interpreter between all the available data points and APIs, and BIR. Before Carrot, BIR had direct access to the supplier's data, but did not have enough manpower or the right competence to exploit this. Consequently, they were only gathering data from one of five suppliers.



**Figure 6:** Illustration of the data flow structure across the value chain in the waste management industry in Bergen.

## 4.2 Collaboration structure

### 4.2.1 Regulating data ownership and access

Carrot was a highly integrated part of BIR at the start of the new venture. With 60 percent ownership, BIR was the largest stakeholder. That meant they had extensive control over the data and how it was being used. The formalistic aspects of their efforts were unimportant because, in the end, BIR was in control. In this period, the collaboration structure was governed by both trust and formal arrangements as is usually the case in interfirm collaborations. The specifics on data sharing within the relationship was not yet formalized.

A crucial part of the process of establishing Carrot as a new venture was to define who would own the data and what access should be provided. In this case it, in line with theory on data governance, entailed specifying ownership, where data should be stored, how it should be stored and what was within the legal framework and compliance. The purpose of the intended data processing as well as the scope was formalized in a Data Processing Agreement (DPA). According to the interviewees, they chose the simplest solution. BIR has full ownership of the

data Carrot uses to generate insight and additional value. BIR employees describe the access Carrot has as quite limited, stating that Carrot does not have the opportunity to use the data freely, and reiterate that it is the property of BIR. A part of the early process of producing the software solution was the creation of a DPA called boss-ID wender requirement version 43. The wender contained descriptions and clear boundaries about how the data should flow, the methods of data gathering and data processing.

One of the factors they had to take into account while determining the specifics of the DPA was privacy and the General Data Protection Regulation (GDPR). It was established that social security numbers, housing numbers, client numbers, and any information that could be used to identify a person should be excluded. BIR made it clear that they prioritized making sure they were not sharing any personal data. Carrot was instead granted access to data about the property as well as data from the access tags registered to the property. They had access to all data that could give BIR information about the number of times a drop of shot has been opened.

BIR followed a simple guide line to aid in the process of determining what data Carrot would be able to process. The main idea was to find out the minimum amount and scope of data that Carrot would need to be able to deliver their services. When asked how they came to an agreement the interviewees from both companies stated that they considered a good collaboration as the key success factor. They further specified that to them a good collaboration was a relationship with trust where it was possible to have good discussions. It was understood that this entailed openness and dedication from all involved parties. The openness meant that the involved employees felt that they could reach out to each other with questions. The dedication was evident through the joint understanding that they would make time for helping each other and shared a common goal of making Carrot a success.

*“We have assessed what data they needed [...] and we chose to limit [Carrots access] to only what they would absolutely need to have in order to do what they do.”*

- BI

#### 4.2.2 Communication and Responsibilities

The contract between Carrot and BIR also specified who were in charge of what and who had the responsibility for what kind of services. Both parties reported and agreed that it should be BIR's



responsibility to communicate with the third party suppliers, and solve any problems that might arise with them. If there was a need for communication with any supplier BIR had, it was no longer the responsibility of Carrot to follow it up.

*“It is actually kind of strange because it is BIR who is responsible to the suppliers. We also have the responsibility afterwards, and Carrot is really just left in between.”*

- B3

At Carrot they had arranged their support system such that there were multiple connection points to BIR. First there was someone in charge of customer success, whose responsibility was to support a customer through onboarding of the solution and building a long-term relationship. According to interviewees from Carrot, these were the ones that had the most frequent communication with BIR. Additionally, there were computer engineers who worked directly on the data they received from BIR and built the Carrot solution. They were in charge of making sure the data flowed in the most efficient manner. This was a role that was rotating between employees at Carrot, making sure that there was always someone in charge of working on problems that might have occurred. An interviewee working hands-on with the data, reported that their job often consisted of fetching someone from customer success or a computer engineer to solve the problem.

At BIR it was the IT manager who signed the contracts and had the final responsibility of the collaboration. The ongoing day-to-day communication fell within the responsibilities of the service manager. The goal was that all communication and interaction would go through him. However, all the interviewees from BIR reported that this was rarely the case in practice. BIR had a unit called back-office which was the unit that used Carrot’s solution. The manager of this unit reported that most of the communication happened between employees in this unit and at Carrot.

*“The goal and intention is that the communication will go through our service manager so that we are in full control of it. But in practice, it probably is more like they will just make a phone call when we need it.”*

- B2

The process consultant also reported that he would approach a specific BIR employee if he had any issues with Carrot. This person had been involved in the collaboration with Carrot for 4 years, and had deep knowledge of the collaboration. The interviewee stated that this person would be able to help him determine if there was an issue that should be brought to Carrot, or if they should solve it in other ways. He also specified that this was not done because he was not allowed to approach Carrot without doing this first, but that it often was the solution that was least time consuming.

### 4.3 Episodes

In the first years after Carrot was established in 2017, there was not a large scale of relational development between the two parties. Carrot operated like an internal unit at BIR. BIR fully financed every activity and employee at Carrot, and their offices were located inside BIR's offices. The employees came from New&Company, and as people would bring their social connections and experiences from previous interactions with a firm into a new one, they had already established relationships with BIR. Thus, the relationship's characteristics deviated from Ford's (1980) description that relationships often experience high levels of uncertainty in the beginning due to low experience.

Gradually, the technological development of the solution was driven forward as an employee from each company would sit side by side, building the solution, integrating new third-party suppliers, and solving the problems that arose as they came. This indicates that the social and cultural distances between them were relatively low, and both parties were committed to the relationship. Our findings indicate that this was a period with low levels of conflict and uncertainty.

Further, the interviewees reported that it was only in the recent year that there had been significant relational developments between the two parties. In the following subsections, the authors will present a series of episodes, associated relational developments, and an analysis of how they might have affected each other.

### 4.3.1 Carve out

Besides the operational insight service Carrot initially developed, they expanded their value proposition by offering a new product, which, as mentioned in section 4.1.2, included environmental and behavioral insight. The primary market for this product was real estate. As part of their strategic plan of expanding from the waste management industry to a new market, they could no longer continue to be fully funded by BIR. In October 2021, they received a venture capital investment from Norselab of NOK 20 million, which gave Norselab 20% equity in Carrot. This episode led to multiple changes that affected Carrot's and BIR's relationship.

The investment from Norselab meant that for Carrot, it was no longer just New & Company and BIR to deal with as stakeholders. There was now a new owner with new demands regarding the company's activities. Also a fairly high percentage of Carrot's resources was now focused on the further development of Carrot and not exclusively on the initial product they developed with BIR, as it had been until then. This changed a lot between BIR and Carrot, and Carrot grew into a more self-sufficient venture. They had to formalize the frames of more of their joint activities and resources.

*“We started out almost like an internal IT-department within BIR, but as we experienced what we call a carve-out, everything from data management, deals and responsibilities needed to be formalized.”*

- C2

As explained in section 4.1.2, Carrot moved their team out from BIR's offices and settled in Oslo. This activity led to a change in their resource ties, as they no longer shared physical offices and they became less dependent on the network of clients and suppliers BIR provided them back in Bergen. Thus one can argue that even though they gained more experience with each other, the distance between them grew. Comparing this to stage (Ford, 1980) and state (Batonda & Perry, 2003) theory it is quite evident that this case is more in line with state theory.

Perhaps the most significant change from the way it was before was the effect on actor bonds; where the geographical and cultural ties between BIR and Carrot became more evident. They lost the daily, physical 1-1 interaction they used to have, working together in the same offices. Instead, Carrot created a support channel in order to follow up and answer all issues and support

cases. The activity links between the parties were also affected by Carrot's growth and expansion of its value proposition. As Carrot's customer base increased, a consequence was less attention to BIR from when they were their only customer and area of focus. As Carrot initially were heavily attached to and dependent on BIR had now changed into becoming more balanced, as they had other funding opportunities and customers to financially lean on.

It was also found that the degree of formality between Carrot and BIR had changed since Carrot was first established. Before, when the new venture was a highly integrated part of BIR, there was not much bound by contract and low levels of formality. "They were in the same boat." Afterward, the relationship became more of a customer/supplier relationship, which needed to be strictly regulated.

*"The dynamic between us and how we communicate is different, and it has to be different!"*

- C2

#### 4.3.2 Rebranding

After the carve-out and the distance between BIR and Carrot had increased, the next step in Carrot's strategic business plan was an extensive rebranding. With the help of Norselab, Carrot made significant changes through different activities such as changing their design profile, their mission and vision, as well as their name. They were no longer WasteIQ but Carrot. The name change captured their move from focusing solely on waste management solutions and customers to a heightened focus on the insight that the data provides when processed. An interviewee from Carrot stated; *"we are called Carrot for a reason; we want to be a cheerful voice, not a whip, but a carrot."* With this strategic move, Carrot fortified the step they had taken in a new direction, away from exclusively focussing their business on operational insight developed with BIR.

The actor bonds and activity ties between BIR and Carrot were also changed due to this process of activities. Before the rebranding, BIR had the attention of a big percentage of the employees at Carrot. However, after the rebranding and Carrots shift of focus, Carrots employees consequently had to focus their attention on the new group of customers and their commercialization activities changed. This also meant that the entrance to the network BIR provided became less important to Carrot then it initially were. This further fortified that BIR and Carrot no longer had the same long-time perspective and vision which they jointly had in the beginning of the relationship. One can argue if Carrot had enough resources, it would be more likely that they would have been able

to expand to the real estate market without major impacts on their relationship with BIR. But Carrot was still in the new venture stage, with limited time and resources. Interviewees from Carrot compared the relation to BIR in the early stages like a marriage; after the relationship was weakened, the most complex challenge was managing the other party's expectations; what used to be what felt like a natural co-development had to be changed into a more formal collaboration.

### 4.3.3 Support channel

BIR employees also reported that there had been a change in who they interacted with in Carrot and how. 3 years ago, the collaboration happened on a daily basis, and employees from the two firms often sat together to solve a specific problem. For example, the task of adding new drop-of-shoots and facilities to Carrot's solution were done in a working group of one employee from BIR and two from Carrot. Now, Carrot dealt with inquiries from BIR through their newly established support channel. Consequently, the perceived distance between the two companies increased. Carrot had made these changes in part to fit into BIR's maintenance systems so they could report events and errors in accordance with their requirements. The process consultant in BIR reported that this worked ok, but that it took longer for Carrot to solve the problem than they were used to before. It was further specified that in most cases, it took a phone call to make Carrot investigate the problem thoroughly enough. They could no longer trust that Carrot would prioritize fixing their problems.

*“One normally has to ask several times before they explore every possible solution and really investigate the problem.”*

- B3

Further, the findings implied that the employees in BIR that had used the support channel were not completely satisfied. The explanation was that they had experienced that it took a more prolonged duration before Carrot solved the problem compared to how they were used to through personal interaction. Interviewees from BIR further specified that they would often have to make additional phone calls to check that Carrot investigated the problem thoroughly and follow-up on how long it would take before it was solved. One can draw parallels to Ford (1980) who highlights that an episode can change the nature of the relationship.

It was also found that another factor contributing to the restrained attitude towards the support channel was that BIR had to supply Carrot with additional information in order for Carrot to be able to solve the problem. The employees at BIR thus felt like they were still left devoting the same amount of resources making Carrot's solution work for them but were not getting the same attention in return. This is a typical example of the issue regarding asymmetry of resources. As a new venture with an increasing customer base, Carrot did not have enough resources to maintain the same amount of attention as before. However, interviewees from Carrot state that they still received calls and emails from employees at BIR asking them to fix problems that were not within the scope of the contract and that it was conveyed in a very informal manner.

Further, interviewees from Carrot emphasize that communication and continuous expectation management were both the most challenging and essential factors in the carve-out process. An explanation can be the close attachment in the beginning, which can have affected what BIR were used to and expected regarding the interaction with Carrot. After the carve-out, Carrot needed first to check if what BIR was asking them was in accordance with the contract or not. Interviewees from Carrot emphasized that they had to act more like a professional supplier and that their relationship had to be strictly regulated.

The frequency of which employees from the two firms interacted has also changed. At the very beginning of establishing the new venture, there were daily meetings of both formal and informal character. The interview object from Carrot reported that they had daily contact with the employees at BIR. The interviewees at BIR gave somewhat different answers. One BIR reported that they had daily contact, while the two others believed it was more likely to be weekly. The form of communication ranged from emails and phone calls to physical meetings. It was also found that the number of meetings had been reduced over the last 2 years from daily to only a couple meetings over the last 6 months.

*“We were in practice functioning more as a subsidiary of BIR than a stand-alone company.”*

- C2

On initiative from Carrot the two parties have newly agreed to schedule regular meetings. These would take place once every month. One of the interviewees stated that the meetings were intended for product development and discussing what additional features Carrot could build to benefit BIR. Another interviewee agreed but added that they would discuss anything from the

data they got to the road ahead. The same interviewee also stated that the meetings were mostly used to check the status of how Carrot was working, including the process of onboarding new third party suppliers. The interviewees from Carrot that had been involved in the relationship with BIR before the carve-out, stated that the meetings were initiated in order to establish an arena where they could maintain the informal relationship and conversations. This was further expressed as an essential factor for Carrot as it would help them solve what they termed the bigger problems, and even more importantly, having access to BIRs domain knowledge. It was further stated that although Carrot had expanded, adding a new market segment, BIR still had significant knowledge of the area they were aiming to tackle, and the interviewees from Carrot highlight this as a highly important factor for their own development, both technologically and business wise.

#### 4.4 Data quality - the Arising challenge

Insufficient and bad data quality was an element that all interviewees highlighted as the biggest reason for frequent communication between BIR and Carrot. *“We may have daily contact regarding these problems” - C1.* The biggest challenge for Carrot was that they were struggling with converting the data they reserved, that they were either deficient or they stopped in exports .

*“If we contact them, it is because something is wrong. There are things that still fail on a regular basis”*

- B2

One of the main problems highlighted regarding the underlying causes of poor data quality was that the waste management industry had been digitized to a small extent. The interviewee from both companies stated that the waste management industry was far behind technologically, even though BIR, in many respects, had been an innovative and progressive company in terms of digital development. It was emphasized that the industry had been built on the belief that there was limited access to information. The most prominent consequence of the waste industry having experienced a insufficient degree of digitization, was that not all third party suppliers produced and delivered data compatible with Carrot's systems. Earlier, the data value chain in the waste industry started when the waste was in the container. Now, data was available from the moment a waste hatch was opened. Nevertheless, most of the third-party suppliers were fragmented in their operations and not standardized.

Regarding the underlying causes of why this was such an issue, it was highlighted; *“It might be BIR who has chosen a bad provider of the data, a bad version. Exactly the responsibility logistics can tie it a little regarding who is responsible when an issue occurs”* - C1. In response, BIR has tried to deal with the issue of the third-party suppliers by requiring new suppliers to be compatible with Carrot, and Carrot must have approved them. However, this did not apply to the suppliers already in use, including the two largest suppliers they already had in their portfolio; Namdal Ressurs and Strømbergs Plast.

*“We have tried solving this problem by telling the suppliers that we can not use them fully until they fix a solution that enables Carrot to communicate with them appropriately and has limited the service to us only taking what is called ‘simple facilities’.”*

- B3

For BIR, the most prominent consequence of the fact that there were holes in the data sets was that they had not dared to permit everyone who had underground facilities to be invoiced by the pay-as-you-throw model. A lack of quality control procedures prevented them from verifying that they had received all the data at all times and that the data was sufficiently accurate. The worst-case scenario would be that customers were invoiced incorrectly and paid too little or too much, which, last-mentioned especially, could be harmful to BIRs reputation.

As the companies experienced the carve-out, joint clarifying expectations became more critical. The contact regarding poor data quality became more of a formalized business relationship, which included a buyer/supplier dialogue rather than the informal dialogue like it initially were.

*“The third-party supplier is more accountable, that they must have a working API, which has been a lot of our challenge. This is now starting to have a better routine.”*

- C4

In which way the issue with poor data quality further affects the collaboration, B2 highlights that she thinks that Carrot may have experienced that BIR have been somewhat negative when most of the communication between them has been support issues concerning something BIR had not been satisfied with - where things had gone wrong, and it had taken a long time to rectify. *“I think*



*“this made them feel the need for both parties to have an oral arena to meet - so we have recently started with that.”*

- B2

According to C1, Carrot has actively focused on trying to learn from previous incidents so that they do not occur again, and further explains that they always strive to find the technical errors to have a solution for them the next time it happens. However, they still often lacked information when something occurred and had to deal with it by communicating with BIR and the third-party supplier, there and then. B2 acknowledged that Carrot had used BIR a lot by asking, «Is this a correct?» and then adapting and evolving based on their answers.

## 4.5 Challenges from asymmetry

### *Lack of access or attention*

The findings show that in this case, the new venture did not experience lack of attention or access to the right people. On the contrary employees from both the companies reported that they were very satisfied with the collaboration. It is also evident that BIR dedicated an extensive amount of resources to the joint efforts of making Carrot's solution work. Key people from the company were involved from the very beginning, they had regular meetings and dedicated their employees time to the project. It can even seem like the asymmetry is somewhat turned around in this dimension. BIR expressed that they are sometimes left to wait, and did not really know if they were being prioritized by Carrot.

### *Different long term objectives*

One can however argue that the challenge of differentiation long term objectives are present. In the beginning, these were not as prominent. The focus of both the companies was to make the technical solution work. They were closely tied in activity links, actor ties and resource bonds. After the above mentioned episodes, one can glimpse certain differences in the objectives the companies have. This has not been explicitly stated, but when asked about what BIR thinks are the benefits of working with Carrot, they give answers that indicate that they have a shorter time horizon than Carrot. BIR would for example state that getting the data from Carrot is their number one priority and goal. Employees from Carrot on the other hand, give answers that indicate that they are more focused on the future and what can be achieved after the solution is

done. They answer that BIR is helping them build a solution that will enable circular waste management and a greener future, through both the data and through accessing their domain knowledge. They are clearly not aligned in this sense. It is also worth noting that on a general basis, the interviewees from BIR were overall a bit more skeptical about the relationship. One even mentioned that there are many employees at BIR who are under the impression that it would have been easier for BIR to create the system Carrot is providing on their own. Interviewees from Carrot on the other hand, were less focused on how the problems they faced with the technical solution affected the relationship.

#### *Lack of resources*

One of the main reasons why BIR might have experienced a lack of attention from Carrot was that Carrot simply did not have enough resources to follow up on all of BIR's requests. As Carrot grew, attention had to be paid on other aspects of the new venture than their relationship with BIR. The employees from Carrot that were interviewed stated that they all had less clear boundaries on who did what, and that a typical day might include everything from attending sales meetings with possible new customers to designing new features of the product. There were not enough employees to fill each role, while in BIR there were far more distinct roles and activities. This corresponds very well to the theory presented by Prashantham & Birkinshaw (2008). It was found that even though the role of supporting BIR was being rotated in between employees in Carrot, the employees in BIR would call or send an email describing their issue to someone in the company that they knew. Consequently, the previous experience they shared was helping to minimize the effects that this challenge could have represented.

## 5 Discussion

The purpose of this study is to investigate how new ventures and established companies manage their collaborative efforts to share data and what affects their relationship. The analysis has presented findings that confirm and further extend the existing literature regarding the research questions;

*RQ 1: How does the collaboration and product processes affect each other and how does it evolve over time?*

*RQ 2: What relational factors are important in the collaboration?*

### 5.1 Main findings

Our findings revealed an initial high degree of closeness and interaction between the established company and the new venture, which later became more distanced. In terms of social barriers, it was found that there were very few risk factors for both the established venture and the new venture in the collaboration. For BIR the risk was considered to be low due to the data being wholly owned by them. They were also highly involved in the process of determining not only how the data should be processed, but also what it was going to be used for. This meant that they had relatively high levels of control in the process, and could trust that Carrot would act according to plan. The risk Carrot underwent was lowered by BIR owning the company and fully financing the development in the first years. The most prominent problem in the collaboration that affected the parties' relationship was identified as barriers regarding data quality. Although the main findings correspond with existing literature on actors sharing data, our findings extend the existing literature to a new context; data-sharing between an established firm and a new venture.

#### 5.1.1 Ownership and responsibility

The existing literature highlights ownership and data access as a challenge in collaboration between data-sharing firms (Brost et al., 2018; Eckartz et al., 2014; Skogli et al., 2019; Yallop et al., 2021). The interviewees point out that as BIR had extensive control over the data by not giving up any ownership, it required less formalistic arrangements regarding ownership and access to data. In the very beginning, Carrot was a highly integrated part of BIR and they worked together on solving a problem BIR was experiencing. This proximity might have made it easier for BIR and Carrot to establish a sense of trust in the start phase and come to an agreement on

data ownership and processing access. As the distance between the two companies grew, less involvement and looser ties between the firms increased the importance and need of defining data ownership and access regulation, which required clarification and contracts between the parties. Thus, even though the collaboration had the advantage of high levels of trust and closeness in the beginning, formal agreements were eventually seen as important parts of the governance structure. This might indicate that if two companies intend to share data, and cannot be as closely integrated as BIR and Carrot were in the very early stages, formal agreements will also be necessary. In most cases of interfirm collaboration, there will be a combination of both formal and informal governance structures.

The authors will argue that the companies solved the potential challenge regarding ownership of data in a good way, as the parties jointly agreed that all the data would be owned by BIR, which both companies expressed as “the easy way of solving it”. However, the authors find it relevant to highlight the importance of solid communication between the parties when one of the firms has legal ownership of the data. Being able to clearly communicate what was needed for Carrot to create their solution was likely an important factor in the discussions on data ownership and processing rights. Without the already established relationship and closeness, this communication could have been significantly more challenging. It was a joint effort and collaboration between the two companies that led to an arrangement where Carrot was allowed access to as little data as they could get while still being able to develop their solution. The focus from BIR’s perspective was to comply with the privacy regulations such as GDPR (Brost et al., 2018; Eckartz et al., 2014; Lee, 2021; Skogli et al., 2019).

The findings confirm that the challenging factors regarding ownership & data access & privacy regulations were demanding processes for BIR and Carrot. An important finding from the research conducted in this thesis is that one of the keys to overcoming these challenges was the relationship between the companies. The interviewees emphasize a good collaboration as one of the most important success factors in handling these challenges. The findings suggested that this entailed a relationship with high levels of trust where one could have discussions and openness regarding questions through the processes. This corresponds with the fourth highlighted critical challenge in a relationship where data is shared, which is trust (Brost et al., 2018; McKnight et al., 2017; Nicolaou & McKnight, 2006; Perez, 2018; Zeiringer & Thalmann, 2022). It is therefore important to note that even though there was eventually a need for formal governance structures

to establish ownership and data access, trust was an important factor in facilitating these discussions and processes.

Previous literature on the subject of interfirm sharing of data, highlighted different data standards and formats as a hurdle in the collaboration (e.g. Lee, 2021; Skogli et al., 2019). This was the very problem Carrot was created to solve. Before Carrot, the most prominent challenge identified was inferior data due to the lack of standardized formats received from third-party suppliers. Carrot was created as an intermediary between them, and had to deal with different data formats and sharing procedures. However, the data quality led to issues in Carrot's solution which further led to a negative effect on the relationship between the established firm and the new venture. The empirical findings imply that data quality is a significant barrier in collaboration between an established firm and a new venture where data is shared, as it was the only challenge cited by the interviewees as problematic in the relationship.

However, when asked further about the problem, the problem did not revolve around the quality of the data itself but rather the handling of responsibility when a problem with the data quality occurred. When the new venture was closely tied to the established company, they worked together to fix the data issues as they arose. Further, it was found that the expectation that the companies would be equally invested in working together to fix the problems as quickly as possible still lingered after the carve out, even though they formed regulations trying to define and delegate the responsibility. When there was more distance in the relationship, the new venture was often left with the impression that they had to fix the issues even though they were not according to the contracts. On the other hand, the established company reported that they had to give a lot of information to Carrot in order for them to solve the issues. The authors perception is that BIR's approach by "forcing" the suppliers to be compatible with Carrot as an essential action dealing with this challenge.

### 5.1.2 The co-evolution of the process of sharing data and the relationship

The process of sharing resources and the development of the relationship are intertwined processes as one will affect the other (Håkansson & Snehota, 1995). The empirical findings imply that if a new venture's and an established firm's employees sit together and work jointly with the process of sharing data, the sharing process affects the relationship in joint problem solving, a higher degree of trust and commitment from each party. On the other hand, if the companies sit at

a geographical distance, there is a necessity for a solid communication platform where the parties can effectively communicate if issues regarding data quality arise—the risks of delays and misunderstanding increase, which could possibly affect the relationship between them negatively.

This study shows the importance of focusing not just on the exchange of resources between two companies, but the relationship between them. One can argue that the relationship between BIR and Carrot set the stage for how the two tackled the challenge of sharing data between them. As the relationship evolved through a series of episodes and their effects, the process of sharing data also changed. In turn, those changes lead factors of the relationship to change. Through these circles of change and continuously building experience on how to work together, the relationship and the sharing process evolved. One can therefore argue that looking at either process as a closed off system would paint an incomplete picture. The relational development was in this case just as important and significant as the process development.

### 5.1.3 Asymmetry and trust

The findings imply that the asymmetry in size gives rise to several challenges. Firstly, the fact that the new ventures are often limited by their newness and smallness makes them vulnerable to the larger firm as they depend more on access to their resources, which sets the larger firm in a *power* position. Secondly, the degree of *commitment* is a factor that the new venture can feel a higher degree of commitment when the larger firm puts pressure and demand on the new venture's performance. It can be argued that the degree of asymmetry they initially experienced to some degree continued to persist later on in their relationship. Nevertheless, the degree of power and commitment had evolved into gradually experiencing more of a balance, to the point that the new company, as mentioned above, checked if what they were asked to do was in line with the contract and made an invoice if it was not. This indicates that although the established venture relationally felt a low barrier in using the new venture for solving the issues, the new venture had grown into a stronger position where they could make their demands.

Moreover, the empirical findings imply that *trust* is an essential foundation for the relationship. These three concepts are broadly researched by scholars but are criticized for not capturing the complexity of interfirm relationships (Munksgaard et al., 2015). An interesting finding here was that the companies initially had a high degree of closeness, which later decreased, and further changed the degree of asymmetry in several ways throughout the relationship. At the beginning

of the relationship, the new venture experienced the pressure and demand to fulfill when requested to, e.g., fix a problem when there was a lack of data, regardless of whether it was their task to do so. After experiencing the relational distance (carve-out), they changed their behavior and checked if what they were asked to do was corresponding with the contract between them, and if it was not, they made an invoice to the larger company. As one can tell, the relationship became more of a buyer/supplier relationship rather than a close internal unit as it initially was. Also, the degree of power changed as the relationship developed. The new venture increased its customer base and raised capital from a venture capital fund, which made them less dependent on the established company in terms of financial support and access to resources, which they initially was in dire need of as a new venture.

#### 5.1.4 The value of the collaboration

The empirical findings confirmed that an established firm can strengthen its innovation capabilities by learning from a new venture, accessing technology competence, and entrepreneurial activities. Moreover, the findings implies that the new venture can use the support of the established company to grow, both in terms of creating new jobs and expanding to new markets. Furthermore, the findings substantiated the importance of access to the established company's network, and most importantly; their domain knowledge. The findings revealed that to exploit the data to its fullest potential, the closeness and tight relation, as well as the willingness from the established company's side to engage in the development and answer the new venture's questions, as a key success factor for their development and growth.

The fact that data is the resource that is shared in this relationship, might not be the determining factor. One could argue that the conflict that stems from data quality, is in fact a symptom exposing how asymmetry shapes the relationship. Consequently, if the two firms shared a different resource, there might still be conflict concerning whose responsibility it is to handle problems as they arise. The asymmetry in power and dependance makes it difficult for a new venture to go against the established firm

The collaboration between BIR and Carrot resulted in fruitful outcomes. BIR was already an acclaimed company in the waste management industry, known for their smart solutions and futuristic business strategies. Engaging in this project with Carrot has given them a chance to strengthen their innovation capabilities, and learn even more about agility and entrepreneurship to

ensure they are in a position to cope with future demands. For Carrot, their close relation to BIR has been crucial. Not only have they been able to work with client data from the very beginning, but have also been in a position to learn in depth know-how about how the industry works and what their customers actually need. In addition to this, they have been able to lean on BIR, and tap into their network and good image. The symbiosis has, in line with the literature, had positive effects for both of the companies. It is also important to note that this collaboration has created value that could be considered a step in the right direction on Norway's path to a greener and more circular economy.

## 5.2 Limitations

There are certain limitations to this study that should be taken into account. An important limitation in this study is that the established company that was chosen is partly state owned. In Norway, state-owned companies are required by law to share all data whenever possible (Meld. St. 22 (2020–2021)). Even though this was not mentioned by any of the interviewees as a reason to share data, it is likely that it has had an effect on the process and BIR's willingness to share their data. From expert interviews, we learned that willingness to share data is dependent on a number of factors. One of the factors that was mentioned was whether or not the established firm is experiencing pressure from governmental institutions. However, it was also discovered that the companies do not yet face any consequences if they fail to share their data. Additionally, as Norway is a leading country when it comes to sharing data across public sectors, the findings are still relevant to new ventures and established firms in these sectors.

It is also important to note that the case that was studied was a result of a joint venture between two established firms. In the establishing phase, most of the people involved with the new venture had previous ties to at least one of these firms. In addition to this, the established firm that had the majority of the stakes in the new venture (60%) was also its first customer. It is therefore likely that the process of initiation both of establishing the joint venture and of establishing the collaboration between BIR and Carrot was important and impacted how the process evolved. This could imply that one can not without consideration extract and generalize the findings of this study and apply to relationships between firms where the process of relationship initiation was different.

This also hints to another limitation, namely that the study does not incorporate a longitudinal research design. The study was conducted by interviewing each informant at similar points in



time. This implies that the authors were only able to capture a snapshot of an interfirm dyadic relationship that is both complex and constantly changing. Studying the relationship by conducting interviews at several points in time would have made it easier to discover covariation in the factors as well as identifying casualties more clearly. This study relied on renderings about events, episodes and effects that had taken place months before the interviews were conducted. Therefore, some of the renderings might have been colored by new impressions the interviewees acquired after the events. With that being said, it was discovered that the interviewees from the same company gave very similar statements, increasing the likelihood that the statements were in fact accurate.

## 6 Conclusion and Contribution

This study has explored *how new ventures and established firms manage their collaborative efforts to share data and what affects their relationship*. To fully comprehend the context and evolution of such a collaboration, an in-depth single case study was conducted. The findings were analyzed using a three-layered theoretical framework to understand their activity links, actor bonds, and resource ties, along with Ford's (1980) five variables to determine how their relationship had evolved over time. Considering that the relationship between the new venture and the established firm were asymmetric in terms of competence, resources, and size, the study was built on literature concerning the concepts of asymmetry. To fulfill the purpose of the thesis, the study has identified two main drivers influencing how the stakeholders in a collaboration manages their efforts and how it affects their relationship. The most prominent drivers were found to be the establishment and utilization of joint agreements and high level of trust from both parties. Nevertheless, the relationship is dynamic and changing through episodes, and the context that the firms and the collaboration develops in must be taken into consideration. Further, the study has shown that throughout the whole process of the relationship both actors pursued actions that aided them in achieving joint problem-solving and making efforts to nourish the relationship. Furtheron, the answers to our research questions will follow;

*RQ1: How does the collaboration and product processes affect each other and how does it evolve over time?*

Based on empirical data and the theoretical framework this study has confirmed existing literature in a new context, namely data sharing. It was found that sharing data is not just a technical issue, but that the process is very much intertwined with the relational process between the involved parties. Through the study there were clear indications that the process of sharing data largely affected the relationship, and vice versa. The case relationship that was studied went from sharing data files over email to the new venture getting the data directly from the third party suppliers. In parallel with this change, the relationship also changed drastically. In the studied case the new venture started out as a joint venture spin-off where one of the parent firms was their main client (the established firm studied in this research). In the earliest stages of the process of exchanging data, the relationship was characterized by close and highly frequent interaction. The level of conflict between the two parties was found to be low. The authors observed that through a series of episodes and effects, the relationship evolved. Interestingly, even though the two parties gained experience in working with each other, the distance grew. This was a natural consequence of the

development of the new venture as a more independent company, whose ambitions and objectives were bigger than solving just the technical problem the established firm was facing. Comparing our findings to the literature on relationship development, this indicates that the dyadic relationship evolved through unpredictable states rather than the predetermined sequence of stages presented by Ford (1980).

*RQ2: What relational factors are important in the collaboration?*

In line with literature on asymmetry in dyadic relationships, the study of this case showed indications of challenges related to different long-term objectives and asymmetry in resources. The difference in the new venture's and the established firm's long-term goals were somewhat overshadowed by the short-term objectives in the beginning of the relationship. After several episodes had created more distance between the two parties, their differences became more clear. This affected the relationship as the new venture would for example communicate to the established firm their goals and ambitions regarding the product development *ahead*, whereas the established firm were more interested in solving the operational issues *at hand*. In addition to this, asymmetry in resources meant that the new venture was unable to follow up their relationship with the established firm regarding the daily operations. The established firm was left waiting for the new venture and reported that they felt that it gave the relationship a negative tone. In response, the new venture recently suggested regular informal meetings once every month, intending to nurture the relationship by sustaining some of the valuable relational factors from the initial phase of the collaboration. The actions witness aiding in joint-problem solving to nurture the relationship, which were found as a highly important factor.

Furthermore, the case study showed that persistent sharing of domain knowledge from the established company to the new venture was a highly important factor in the collaboration. Due to data not being of value without knowledge of how to make use of it, openness and willingness to share this knowledge was found as a key relational factor to consider sharing resources between a new venture and an established firm.

The concept of formality or informality in governance of the data exchange process was also found to be of importance. The case relationship showed high levels of trust in the early stages as the people involved in the collaboration had previous experience with each other. There was however also relatively high formal governance as the established firm was the majority owner of the new venture. The level of formal governance continued to increase as the distance grew

between the companies. It was found that eventually, every factor of the exchange was bound by contracts. The authors find it interesting to note that even though there were formal contracts in place to govern the collaboration, the contract was often overlooked in search for “the easiest solution” which would be a phone call between employees who knew each other. This led to conflicts on issues like responsibility for poor data quality, even though it was predetermined in the contract. The high levels of trust and experience between the involved employees seemed to make it easier for them to come to an agreement on what the contract should and should not cover. In addition, despite high levels of formal governance, allocation of responsibility needs to be jointly agreed upon and well-communicated to all involved in each collaborative firm to minimize chances of challenges in collaboration regarding data sharing.

#### *Further research*

This thesis provides insights into a domain that, as of today, is insufficiently explored, and confirms the existing literature in this field of research in a new context. The findings suggest that although the technical requirements for data sharing are important, it is equally important to pay attention to the process of relationship development. In the following subsection, the authors will suggest specific focus areas for further research.

In this thesis, the authors have made simplifications in the consideration of the relationship between the two companies. One of those simplifications was to focus our efforts on the dyadic bilateral relationship. To be able to map best practices on how new ventures and established firms can manage their collaborative efforts by sharing data as a resource, a necessary contribution is to investigate and compare how collaborative relationships evolve across multiple companies, as well as comparing how the relationship evolves in various sectors. Further, the authors note that through the interviews both of the companies frequently mentioned the third-party suppliers’ role in the collaboration. Thus, it would give valuable insight to focus efforts in further research on expanding the scope to include such third parties and study the entire data-sharing value chain. Moreover, the authors suggest further research to include the impact on a relationship where the established company has no other interests in form of equity in the new venture using their data, and compare the degree of success to collaborations with more incentivization. We also suggest investigating established firms and new ventures where the established venture does not provide the new venture with any other resources than data and map out the key success factor of such constellation. Lastly, for further research, we suggest investigating how government influence has and can affect established ventures to open up more data sharing with new ventures.



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# 8 Appendices

## 8.1 Appendix A: Semi-structured interview guide

**Interviewee:**

**Date:**

**Present:**

Kaja Juel Solheim

Sophie Irgens

### Introduction

Introduce who we are to the interviewee.

Introduce the assignment we write to the interviewee.

Ask for permission to record and transcribe the conversation.

Inform about how the data is to be processed and stored.

Explain how the data is anonymized and deleted at the end of the project.

Questions for the interviewee:

- Do you have any questions before we begin?
- Can you tell us a little about what kind of experience you have from before?
- Can you tell us a little about what your position is about?

### Main section

#### **Case specific information**

- Can you tell us about how the data flows in the waste management industry?
- What is the role of [the company] in this process?
- How did the collaboration begin?
- How did you assess the risk of sharing data?
- Did you do anything to reduce this risk?

#### **The process**

- How is the data shared between BIR and Carrot?
- Are there other activities or resources shared between you in this project?
- Who at [the company] is responsible for the collaboration?
- How is the collaboration followed up?
- How often are you in contact with [the other company]?
- Who in [the other company] are you in contact with?
- What is being discussed?
- How has the process changed over time?
- What problems have arisen and how have they been solved?

### **Dependence**

- How important is the collaboration? Why?
- What do you think [the company] gets out of the collaboration?
- Have you adapted your routines for this specific collaboration?
- Are other activities or resources shared between you beyond this project?
- Does [the company] have other similar collaborations?

## **Wrap Up**

- Is there anything we have not talked about that you would like to add?
- Do you have any feedback on how the interview was conducted?
- Can we get back to you if we have follow-up questions?
- Do you have suggestions for anyone else we can contact?

