

# The Impact of Pre-COVID Commitment on Supply Continuity Throughout the Pandemic and the Impact of COVID on Post-COVID Commitment within Buyer-Supplier Relationships

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## Abstract

*Commitment within buyer-supplier relationships has often been argued to be an important determinant for supply continuity during disruptive events. The different dimensions of commitment (e.g. affective and calculative commitment) influence the supply continuity in different ways. By means of a multiple case study approach and cross-case comparisons, the impact of pre-COVID commitment on supply continuity throughout the pandemic was analyzed. Moreover, the impact of COVID on post-COVID commitment levels in buyer-supplier relationships was also discussed. The findings provide several new insights, that were collected through interviews with a company from the engineering industry and its suppliers. First of all, there was a trend observed where high pre-COVID commitment did create high supply continuity. Besides that, calculative commitment-based relationships showed lower post-COVID commitment levels than the majority of the relationships that were affective commitment based. Lastly, the effect of COVID on post-COVID commitment levels did vary between individual cases, where also some mediating factors influenced the relationship. Overall, this research contributes to the literature by showing new insights into the different dimensions of commitment during a disruptive event, as well as analyzing the impact of COVID on post-COVID commitment levels.*

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## Keywords

Commitment, buyer-supplier relationships, supply continuity, affective commitment, calculative commitment, the impact of COVID on supply chain relationships.

## 1. INTRODUCTION

The COVID pandemic has impacted everyone, whether it may be in a good or bad way. It has been the biggest economic shock since World War II (De Meyer, 2020). COVID has had the world in its grasp for a couple of years. It has brought a lot of uncertainty into the world. The pandemic has been a disruptive event, which creates a need for joint buyer-supplier efforts. This proves to be the best way of dealing with a disruption, limiting the negative impact on the corporate performance (Yu, Zeng, & Zhao, 2009; Ivanov, Dolgui, Sokolov, & Ivanova, 2017; Xiao, 2021).

Linking this to a business context, every company also has to deal with the uncertainty that the pandemic has brought with it. In this paper, the influence of COVID on buyer-supplier relationships will be discussed. "Factors that influence relationships are reputation, performance satisfaction, trust, social bonds, comparison level of the alternative, mutual goals, power/interdependence, technology, non-retrievable investments, adaptation, structural bonds, cooperation, and commitment" (Powers & Reagan, 2007, p. 1235). This shows the multidimensionality of buyer-supplier relationships. The focus of this research will be on commitment (in the relationship). Commitment indicates the extent to which companies have a desire to maintain a high-valued relationship (Moorman, Zaltman, & Deshpande, 1992). In times of the pandemic, it is unsure if companies are still willing to commit to long-term relationships with their suppliers or if they are focused on creating a flexible and agile organization. Although this is an important matter to discuss, little is known about it. Organizations are more vulnerable during a disruption due to the focus on global and lean supply chains (Tang, 2006; Pettit, Croxton, & Fiksel, 2013). Therefore it is interesting to find out how companies are still able to acquire resources, after a disruptive event has occurred. Commitment could be a good dimension within buyer-supplier relationships to consider, given the importance of collaborative activities in a supply chain during a disruption (Zhang, Srivastava, Eachempati, & Yu, 2021).

The purpose of this paper will be to analyze how pre-COVID commitment has helped companies to acquire resources during the pandemic and how post-COVID commitment has been affected. Commitment is a fundamental prerequisite when managing buyer-supplier relationships (Prajogo, Mena, & Chowdhury, 2021), pre-COVID (Dwyer, Schurr, & Oh, 1987; Gundlach & Murphy, 1993; Coote, Forrest, & Tam, 2003), during COVID and of course, after COVID (Hobbs, 2020; Kauffman & Pointer, 2021). Analyzing how COVID has impacted the levels of commitment that firms are showing to maintain long-term buyer-supplier relationships, is something that is really interesting, but has not yet been studied.

Following from that, the research question that will be discussed is: "How did pre-COVID commitment within buyer-supplier relationships help companies acquire resources during COVID and how did COVID affect post-COVID commitment within buyer-supplier relationships?"

The academic relevance comes from the focus on the impact of COVID on commitment levels within buyer-supplier relationships. Multiple studies have been conducted on the different dimensions of commitment in buyer-supplier relationships (Kumar, Scheer, & Steenkamp, 1995; Geyskens, Steenkamp, Scheer, & Kumar, 1996; De Ruyter, Moorman, & Lemmink, 2001). However, the majority of these studies did not focus on the impact of a disruption on these specific commitment levels that are going to be discussed in this research. Therefore, this research aims to contribute to the knowledge on commitment

levels by providing new insights on the matter, by analyzing multiple dimensions of commitment during a disruptive event.

The main findings of this research have been that pre-COVID commitment positively influenced supply continuity. Moreover, calculative commitment is more common in buyer-supplier relationships where there is less post-COVID commitment than in relationships where there is high post-COVID commitment. In those relationships with high post-COVID commitment, affective commitment is more dominant. Finally, the effect of COVID on post-COVID commitment levels does vary in the different buyer-supplier relationships and contains several mediating factors that influence this impact.

The rest of the research will be structured as the following. The next section clarifies all the key concepts and definitions. After that, the methodology of the research will be presented. The results will be provided, presented in short summaries and cross-case comparisons. Lastly, a discussion will be provided, that considers the limitations of this research, as well as suggestions for interesting future research.

## 2. LITERATURE REVIEW

Within the research question, three main concepts need to be defined. First of all, there are buyer-supplier relationships. Secondly, there is the impact of the disruptive event, which is COVID. Lastly, there is 'commitment' within buyer-supplier relationships, which will be analyzed pre-, during- and post-COVID, as well as the different dimensions of commitment.

### 2.1 Buyer-Supplier Relationships and the Impact of COVID

Throughout the years, the concept of buyer-supplier relationships has been defined in many ways. For example, buyer-supplier relationships can be defined as: "the vertical economic arrangements within any given dyad, ranging from market mediated to hierarchical transactions that have implications for marketing channels, where each party is responsible for the relationship to some extent" (Achrol, Reve, & Stern, 1983; Shamsollahi, Chmielewski-Raimondo, Bell, & Kachouie, 2021). It refers to the extent to which the buying firm wants to have a long-term relationship with their supplier (Anderson & Weitz, 1992; Morgan & Hunt, 1994; Krause & Ellram, 1997; Haugland, 1999; Cooray & Ratnatunga, 2001), including information exchange (Hendrick, 1995; Sánchez-Rodríguez, Hemsworth, & Martínez-Lorente, 2005), benefit sharing (Ellram, 1991) and joint problem-solving (Hendrick, 1995; Campbell, 1997; Claycomb & Frankwick, 2010) (Tungjitjarum, Suthiwartnarueput, & Pornchaiwisetkul, 2012). Buyer-supplier relationships also consist of different dimensions. These are trust, dependence, commitment and coordination (Mohr & Spekman, 1994; Olsen & Ellram, 1997).

Buyer-supplier relationships have attributes that can be separated into two categories (Tangpong, Michalisin, Traub, & Melcher, 2015). These two different categories are: relational attributes and power-dependence attributes (Tangpong, Michalisin, & Melcher, 2008). Relational attributes are present in many different forms, such as trust, cooperative efforts, commitment, and many more. Because commitment is one of the key concepts in the research question, the main focus will be on a relational attribute of buyer-supplier relationships.

In times of a disruption, buyer-supplier relationships are affected, because of citizenship behavior being favored (Matopoulos, Didonet, Tsanasidis, & Fearn, 2019; Moonen, 2020). That could lead to benefits for each party individually, because they do whatever is best for their own company. Next to that, COVID has

shown to create extreme uncertainty and time pressure in supply chains (Handfield, Graham, & Burns, 2020). This links to the buyer-supplier relationships, where many supply chains were unprepared according to Van Hoek (2020).

COVID has made it harder in general for supply chain managers to react to the quick changes and uncertainty in supply chains (Meyer, Niemann, & Weerheim, 2021). Especially with regard to the supply of resources, it can be difficult to maintain supply continuity (Magableh, 2021). This research aims to investigate whether this theory is also valid in practice.

## **2.2 Definition of Commitment and Its Role in Buyer-Supplier Relationships During a Disruptive Event**

The level of commitment that companies want to put into a long-term buyer-supplier relationship can vary a lot. The definition of commitment is “an enduring desire to maintain a valued relationship” (Moorman, Zaltman, & Deshpande, 1992, p. 316). It is an attitude concerning the continuation of a relationship with a business partner (Wetzels, De Ruyter, & Van Birgelen, 1998). It is the most frequently used dependent variable in research into buyer-supplier relationships (Wilson, 1995; Wegdam, 2021).

First of all, knowledge-sharing, continuous commitment, and mutual relationship investment are buyer-supplier coupling factors that integrate the buyer and the supplier in the accomplishment of supply chain tasks (Liu, Huang, Luo, & Zhao, 2012). In such as situation, buyers and suppliers are more likely to push themselves to the limit because a collaborative and supportive relationship has been established (Hobbs, 2020). This could be essential in times of disruption, when uncertainty arises in supply chain operations.

Successful supply chains are based on high levels of trust and strong commitment between supply chain partners (Kwon & Suh, 2004). Therefore, companies need to make sure they show commitment towards their buyers and suppliers to achieve good-performing supply chains. However, COVID has shown to be a disruption in supply chain relationships, which makes it interesting to see how COVID has impacted commitment levels. It could be that COVID caused higher commitment levels, because companies want to combine forces effectively in uncertain times. However, it could also be that companies are less interested in investing in commitment, because they have to focus on their own business operations and do not have the time to cope with demands from their suppliers or buyers.

Before COVID broke out, companies were already investing in buyer-supplier relationships with regards to commitment (Zhang, Srivastava, Eachempati, & Yu, 2021). There has always been a need to create mechanisms that create synergies between a buyer and supplier. Synergy could provide potential strategic advantages of cooperation, even in disaster management (Nagurney & Qiang, 2019). This shows that during a disruption, which is in this case COVID, it is beneficial to invest in commitment towards your buyers and suppliers.

A satisfied supplier is more likely to commit to a purchaser during a disruptive event. Through facilitating the sharing of risk, joint decision-taking and the collaborative allocation of resources, suppliers feel connected to a purchasing firm (Matopoulos, Didonet, Tsanasidis, & Fearn, 2019), which creates higher levels of commitment in the buyer-supplier relationship. Therefore, the role of commitment during a

disruptive event is important and can help companies collaborate during difficult times.

## **2.3 Different Dimensions of Commitment**

Commitment has two key dimensions: affective and calculative commitment (Ozkan-Tektas, 2014). These different types of commitments will be discussed, as they occur most frequently in practice (Kumar, Scheer, & Steenkamp, 1995; Geyskens, Steenkamp, Scheer, & Kumar, 1996; De Ruyter, Moorman, & Lemmink, 2001). They differ from each other with regard to the motivation behind maintaining a buyer-supplier relationship (Geyskens, Steenkamp, Scheer, & Kumar, 1996).

Affective commitment arises from a desire to maintain a relationship with a buyer or supplier, because they like each other (Davis-Sramek, Droge, Mentzer, & Myers, 2009). Affective commitment contributes to the desire to stay in a relationship, the overall corporate performance of both companies and the willingness to invest in a buyer-supplier relationship (Wetzels, De Ruyter, & Van Birgelen, 1998). Good to note is that it also can have a negative influence. Development of alternatives for a relationship and opportunistic behavior (Wetzels, De Ruyter, & Van Birgelen, 1998) are negatively influenced by affective commitment. Lastly, to establish a relationship that is based on affective commitment, it is important that there is trust in the benevolence and honesty between both parties (Wetzels, De Ruyter, & Van Birgelen, 1998). If those factors are not present, affective commitment can be hard to achieve.

In contrast to affective commitment, calculative commitment is more focused on the economic reasons behind maintaining a buyer-supplier relationship (Davis-Sramek, Droge, Mentzer, & Myers, 2009). It does positively influence the development of alternatives and opportunism (Wetzels, De Ruyter, & Van Birgelen, 1998), which is different from affective commitment. With calculative commitment, the companies are staying in the relationship, because they need to maintain it for rational reasons. Furthermore, mutual investment combined with mutual dependency creates stability for buyers and suppliers (Jap & Ganesan, 2000; Chiou & Droge, 2006). This creates additional loyalty within a buyer-supplier relationship, on the condition of a continuous supply of goods within the relationship. Moreover, in a buyer-supplier relationship that is based on calculative commitment, long-term contracts are more common, which creates continuity. It reduces the complexity of the relationship, as well as learning costs (Davis-Sramek, Droge, Mentzer, & Myers, 2009). Next to that, a factor that is an important influence on calculative commitment is service quality. Service quality considers the concept of order fulfillment by the selling party according to cognitive evaluations by the buying party (Dick & Basu, 1994; Bienstock, Mentzer, & Bird, 1997). This creates satisfaction that stimulates calculative commitment (Davis-Sramek, Droge, Mentzer, & Myers, 2009). However, there is research being done that assumes relationships based on calculative commitment are rather negatively motivated (Geyskens, Steenkamp, Scheer, & Kumar, 1996). It is mainly based on monetary motivations, which also could leave one party with sunk costs, if one party wants to breach the relationship. This applies to the time and effort that has been put into a relationship.

During COVID, commitment levels will become more important (Matopoulos, Didonet, Tsanasidis, & Fearn, 2019), because it can be classified as a disruption. During economic crises, the role of commitment is not to be ignored. Looking at affective commitment, companies are likely to stay in buyer-supplier relationships due to emotional attachment (Rather, Tehseen, Itoo, & Parrey, 2019). This does not directly link to a disruptive event,

because it is more of a personal perspective from the one company to the other (Rather, Tehseen, Itoo, & Parrey, 2019). However, calculative commitment on the other side, tends to get influenced more by a disruption. As mentioned before, calculative commitment can drop when there are considerable alternatives to a supplier. (Wetzels, De Ruyter, & Van Birgelen, 1998; Rather, Tehseen, Itoo, & Parrey, 2019). During a disruption, companies are not showing the same intention to switch suppliers (Wilson & Vlosky, 1998). This could mean that even though calculative commitment levels do vary, not the same switching behavior occurs during COVID.

Nevertheless, the importance of commitment is clear, with both dimensions having advantages and disadvantages, as well as reasons why they exist. Therefore, it looks like commitment will get increased attention post-COVID (Hobbs, 2020). It has put companies at an advantage that did pre-COVID commitment, which put them in a position where they continuously could acquire sufficient resources. This theory will be tested in this research, to see if it actually is like that in practice.

### 3. METHODOLOGY

To answer the research question: “How did pre-COVID commitment within buyer-supplier relationships help companies acquire resources during COVID and how did COVID affect post-COVID commitment within buyer-supplier relationships?”, a multiple case study has been designed. A multiple case study approach fits the research aims best, because it does not control or manipulate variables. Next to that, it studies a phenomenon in its natural context, at one or a few sites and it makes use of qualitative tools for data collection and analysis (Cavaye, 1996). Within the research question, there is no need to control or manipulate variables. Multiple sites have been studied and interviews have been conducted, which are qualitative assets (interviews) to collect data. Also, multiple-case studies are particularly useful in research where there are few cases to report and an in-depth understanding of phenomena is required (Ahmad, Maynard, Desouza, Kotsias, Whitty, & Baskerville, 2021), which is the case with this research about analyzing the different dimensions of commitment in buyer-supplier relationships. Lastly, a case study approach has shown to be effective when trying to elaborate on the theory (Ketokivi & Choi, 2014; Weller, Pulles, & Zunk, 2021), which this research aims to achieve. The effect of COVID on commitment levels in buyer-supplier relationships and how commitment has helped companies acquire resources during COVID are examples that add to the already existing knowledge about the effect of disruption on buyer-supplier relationships. Therefore, a multiple case study approach is the best fit for this research.

#### 3.1 Case Selection

The unit of analysis in this research is the buyer-supplier relationship. In the case selection, a variety of cases have been selected between a Dutch engineering company and its suppliers. Convenience/purposive sampling has been used, which is a non-probability type of sampling (Vehovar, Toepoel, & Steinmetz, 2016), to determine what buyer-supplier relationships will be investigated, so that levels of pre-COVID commitment in the relationship will vary (Etikan & Bala, 2017; Sarstedt, Bengart, Shaltoni, & Lehmann, 2018). That makes it more convenient for this research. It is one of the most commonly used sampling methods (Acharya, Prakash, Saxena, & Nigam, 2013). The main criterion is to investigate buyer-supplier relationships that were

acting differently with regards to commitment pre-COVID and now, to see what changes can be observed. Therefore, several cases have been selected with varying commitment levels, to see what kinds of impact they had on the continuity of supply for the chosen company. These cases are listed in Table 1.

**Table 1: Case selection with company characteristics.**

Case	Function	Levels of commitment pre-COVID	Length of the relationship	Industry / supplier of what goods
<b>BX-S1</b>	Account manager (supplier 1)	High	20 years	Program-mable logic controllers and automatization components
	Purchasing manager (company X; buyer)			Engineering
<b>BX-S2</b>	Account manager (supplier 2)	High	15 years	Connectivity components, switches, emergency lighting
	Purchasing manager (company X; buyer)			Engineering
<b>BX-S3</b>	Account manager (supplier 3)	Medium	10 years	Semiconductor components, automatization components, packaging machines
	Purchasing manager (company X; buyer)			Engineering
<b>BX-S4</b>	Account manager (supplier 4)	Medium	10 years	Electrotechnical components
	Purchasing manager (company X; buyer)			Engineering
<b>BX-S5</b>	Account manager (supplier 5)	Low	4 years	Signalization components
	Purchasing manager (company X; buyer)			Engineering

	sing manager (company X; buyer)			
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As is shown in the table, the selected cases differ from high commitment cases to low commitment cases. The cases are coded as BX (the buying company, that is the same in every relationship) and then which supplier is part of the relationship (S and then a number). The different cases contain different kinds of suppliers that supply the company with different goods. Some of them supply them with core business components, whereas other supply them with some small goods that are less important (for example: supplier 5 with the signalization components is less important to company X than supplier 1 with the programmable logic controllers). In this way, there is validity ensured, because the five different cases provide a complete overview of how commitment may vary and influence the post-COVID commitment within the relationship.

### 3.2 Data Collection

For the selected relationships, interviewees have been selected at the suppliers and the buyers side that have been interviewed, so that a perspective from both sides is provided. To ensure that the interviewees were knowledgeable about the relationship, only a purchasing manager was selected from the main company that was in direct contact with the supplier (Berends, van Burg, & van Raaij, 2011; Howard, Roehrich, Lewis, & Squire, 2017). Next to that, an employee of the supplier was interviewed that was in direct contact with the main company, which indicates that an account/sales manager would be best. Besides that, the interviewees have been informed about the definition of key concepts before the interviews were conducted, to ensure familiarity with the definitions in the literature review. This includes commitment and its various dimensions (see Appendix A).

In total, there were ten interviews conducted on five buyer-supplier relationships within a Dutch engineering firm. This means that there were interviews with the purchasing manager from the engineering company and then one with a salesperson from the supplier. The interview protocols for the buyer and supplier are listed in the appendix (see Appendix B and C). The chosen company is a company in the industrial engineering sector, which makes it a nice fit with COVID. COVID has impacted the engineering sector harshly, especially with regards to acquiring resources consistently and projects getting delayed (PwC, 2020), but could also provide aid in the recovery process after the pandemic (Mangaroo-Pillay & Roopa, 2021). This shows the relevance of especially the second part of the research question: "how did COVID affect post-COVID commitment within buyer-supplier relationships?". Therefore, post-COVID commitment could come in handy in this industry, if these companies will try to resolve all the problems that occurred from the pandemic. This makes this industry interesting to use for this research.

The data has been collected through interviews. First of all, the interviewees got a clarification of core concepts (see Appendix A), so that they can apply them to their answers where necessary. The interviews were structured according to an interview protocol, which is semi-structured. Semi-structured interviews are suited when open-ended questions require some follow-up

questions (Adams, 2015). The relevance of the interview questions is listed in Appendix D, where they are linked to the key constructs of the research question.

The interviews have been conducted in person or via an online meeting. If the answers were not complete after the interview was done, the interviewee would have been contacted for some further questions. Fortunately, this did not happen. After every interview had been worked out in a short summary, the respective interviewee received the summary to see if the information had been presented correctly (Ellram, 1996). In that way, the results will turn out to be the most reliable (Ellram, 1996). The interview protocols in Appendix B and C provide an overview of the interview questions that were asked to five different suppliers and the purchasing manager of the purchasing company. In that way, there were ten interviews in total, where the five suppliers were interviewed on their specific buyer-supplier relationship with the buying firm. After that, the purchasing manager provided his view on the relationship.

### 3.3 Data Analysis

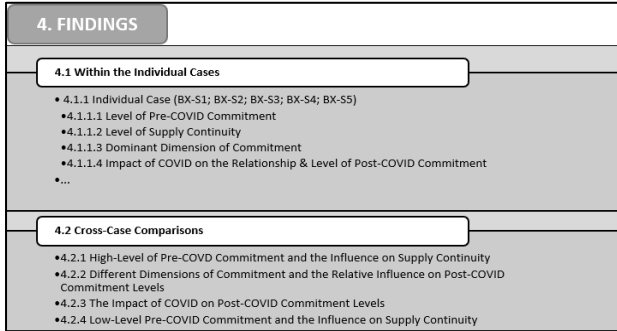
The analysis of the data has been initiated parallel to the data collection process. Directly after each interview, a summary was written according to the core concepts addressed in the interview. Next to that, there were also cross-comparisons between different relationships to see whether a pattern could be observed. This makes the answer to the research question more valid (Ridder, 2017), by observing the key trends that occur in multiple relationships. In addition, there are sections written on the main concepts within the research question. This is done from within the cases. After that, they were compared with each other. This will be the overall conclusion of the research, which will be further discussed in the discussion section. After the summaries of the cases were done, the cases were listed in the following table to provide a clear structure for the results section (see Table 2). This has been done by analyzing the interviews manually and scoring them based on answers from both perspectives. These perspectives are from the Dutch engineering company (the purchasing manager) and its suppliers (account managers from the supplier). All the individual buyer-supplier relationships were judged on their pre-COVID commitment level, the supply continuity throughout the pandemic, the dominant dimension of commitment within the relationship, the impact of COVID on the relationship and finally, the post-COVID commitment level. These variables provide the structure for the individual case summaries, which are all discussed in separate paragraphs.

**Table 2: Framework for the overview of the results.**

Case	Pre-COVID commitment	Supply continuity	Dominant dimension of commitment	Impact of COVID on relationship	Post-COVID commitment
BX-S1					
BX-S2					
BX-S3					
BX-S4					
BX-S5					

## 4. FINDINGS

The findings describe the processes of how commitment has helped firms to acquire resources during the pandemic and how COVID has affected post-COVID commitment within buyer-supplier relationships. The structure of this chapter is visualized in Figure 1. It starts with describing the individual cases, on all the criteria listed in Table 3. After that, several cross-case comparisons are provided with the key trends of the findings.



**Figure 1: Framework visualizing the structure of the findings chapter.**

### 4.1 Within the Individual Cases

This section discusses every individual buyer-supplier relationship separately. The main characteristics of the relationship are listed in the methodology (see Table 1). In this section, the individual cases are analyzed on the main concepts subject to this research. To make a clear overview, the main findings have been provided in the table below (see Table 3).

**Table 3: Main findings regarding the five individual cases.**

Case	Pre-COVID commitment	Supply continuity	Dominant dimension of commitment	Impact of COVID on relationship	Post-COVID commitment
BX-S1	High	High	Affective	High	High
BX-S2	High	Medium	Affective	High	Medium
BX-S3	Medium	Low	Affective	High	High
BX-S4	Medium	Low	Calculative	High	Low
BX-S5	Low	Low	Calculative	Medium	Low

#### 4.1.1 BX-S1: High Pre-COVID Commitment, High Supply Continuity, High Post-COVID Commitment and Affective Commitment-Based

The first case (BX-S1) is the relationship with the core supplier of the engineering company, S1. The relationship already exists for around 20 years and commitment levels pre-COVID have been high. S1 supplies the engineering company with programmable logic controllers and automatization components, which is essential for the projects that the engineering company is involved in. This makes S1 its core supplier.

##### 4.1.1.1 High Pre-COVID Commitment

First of all, the pre-COVID commitment was high. S1 was well prepared for the pandemic. Because S1 is part of a big chain of

companies, they already prepared themselves with high levels of stock with regards to multiple different kinds of components, which made them survive the first part of the pandemic pretty easily. At that time, the buyer in this relationship was really satisfied with the lead times, compared to other suppliers. S1 was able to create high stock levels, because they classify commitment as one of their core values. Their “relationship management department” keeps going with the actual trends of how to keep as much contact as possible with your customers, which the buyer noticed during the pandemic. Also, the thought processes about how to save costs for the engineering company in their projects during the pandemic have been a massive help for the buyer in this case. This is something that not a lot of companies do, but because S1 did it before and during the pandemic, it showed that they were pretty well prepared when it considers commitment. This makes the pre-COVID commitment level high.

##### 4.1.1.2 High Supply Continuity

Although the supply continuity has been impacted by COVID, due to a global shortage of resources, S1 was able to supply the engineering company with their resources, because they had high stock levels most of the time. Unfortunately, lead times became longer when the pandemic progressed, but according to the buyer, S1 always delivered eventually. Therefore, the score here is high. The purchasing manager from the engineering company did agree on this level of supply continuity.

##### 4.1.1.3 Affective Commitment

The relationship is built on high levels of transparency, which creates a situation where both companies like to work together. “We are always committing fully to the relationship in the way that we trust each other 100%” is a quote from S1. In the interview with the buyer, this was also named: “transparency is key in our relationship”. This shows that affective commitment is high and present in this relationship. The calculative dimension also exists, but to a satisfactory level where both firms know that the prices being given are fair. So the dominant dimension is definitely affective commitment, because the purchasing manager from the engineering company told the same story.

##### 4.1.1.4 High Impact of COVID and High Post-COVID Commitment

The effect of COVID on the relationship has been relatively big. COVID has made lead times longer than usual, especially because of the logistic issues that were occurring around the globe. From the perspective of the buyer, it can be really frustrating when resources are not delivered on time. However, the logistic issues that this supplier had to deal with were respected by the buyer, because it was a COVID-related issue. Nevertheless, the company still needed to get their components delivered, as they had projects going on, so they had to shop elsewhere, which made it more costly for them, as prices were more expensive. Next to that, the personal contact became way less than usual. Meetings were scheduled online, which made it harder to keep the good connections alive. However, because the relationship already exists for over 20 years, from the perspective of both companies, it was clear that they would keep this bond, because it is high-valued.

Then it went on to the effect of COVID on commitment. From both parties, it was clear that COVID has shown that companies have to start investing more into commitment, to create a bond

with their customers or suppliers to help each other in hard times. The supplier in this relationship mentioned that “the costs are rising, however, the turnover has risen in 2021 with around 40%”. This shows unusual growth for a company that already is the market leader, which indicates that there will be different times coming in the near future. Therefore, you need to be even more prepared right now, because it could become even harder in a couple of years. Therefore you need commitment from both sides in the relationship to deal with all the supply chain related issues: ranging from logistic issues to prices exploding. Moreover, the challenges that COVID caused made it difficult for companies to always be transparent towards each other, because you simply cannot inform each other as much as you want to. There is so much to do during COVID: so many difficult situations that need to be managed, which makes it difficult to always contact each other right away. Therefore, you could say that COVID has made companies more aware of how important communication is and to also be able to receive/implement critical feedback where it is due. This makes the post-COVID commitment level high, as well as the impact of COVID on the relationship.

#### *4.1.2 BX-S2: High Pre-COVID Commitment, Medium Supply Continuity, Medium Post-COVID Commitment and Affective Commitment-Based*

The second case (BX-S2) of this research is the buyer-supplier relationship of the engineering company with their supplier of connectivity components, such as connection cables, signal columns and connectivity modules. This buyer-supplier relationship exists for about 15 years. Next to the core business regarding connectivity components, they also supply the company with smaller goods if its regular supplier runs out of stock (such as: switches and emergency lighting).

##### *4.1.2.1 High Pre-COVID Commitment*

First of all, the relationship between the two companies was really good pre-COVID. The level of commitment was high. The companies used to have lunch together “at least once every 2 to 3 weeks” (according to the buyer), which indicates intensive management of business relations. This shows that both companies like to work with each other, because they even have “contact that is not only business related” (according to S2 and the purchasing manager of the engineering company).

##### *4.1.2.2 Medium Supply Continuity*

The supply continuity did vary throughout the pandemic. At first, S2 was able to supply the engineering company with the goods it needed, however, later on their stock levels reduced and it was not possible for S2 to supply the engineering company with everything they needed in time. Therefore, the score on this criterion will be medium, also because of “a new production hall that S2 failed to operationalize in time”.

##### *4.1.2.3 Affective Commitment*

The dominant dimension of commitment has been affective commitment. Because of the intensive relations management of both companies, through having lunch together and having a lot of contact, it is obvious that affective commitment is dominant. When addressing calculative commitment through discussing contractual terms and conditions, it seemed that both parties were satisfied with those and that they could always “make it work for

both”. Next to that, both the supplier and the engineering company are located in the eastern part of the Netherlands. From both companies, it was mentioned that doing business together can be about doing favors from time to time. They both mentioned that that mindset is leading in this part of the country and that they are sitting in the relationship with the same mindset. This also indicates the dominance of affective commitment.

#### *4.1.2.4 High Impact of COVID and Medium Post-COVID Commitment*

The impact of COVID on the relationship has been relatively high. S2 mentioned that they tried to cope with the rising demand for components in the engineering industry by installing “a 30.000 m2 production hall” during COVID, which was a big investment. This was to make sure that all their customers could be served with the goods they needed. But looking back on it, there was not enough personnel which made it difficult to get their operations up and running. This was a big blow for them and also impacted their business operations. Because this turned out to be a failed investment at first, it had a negative influence on the relationship. It created stress at the site of S2 which also manifested itself into the contact with the buyer (as mentioned by both parties). Therefore the impact of COVID has been really big. COVID has shown both parties that effective collaboration through commitment is essential during a disruption. Both parties mentioned to be trying to reinstall the relationship at a level where it was pre-COVID, because it has become a little bit worse through all the online contact, instead of in-person. Also, the non-continuous supply of resources has made the commitment level from the buyer’s side lower, because they want to see S2 getting their operations back on track first, before they will invest more into the relationship. Therefore, the commitment level in this relationship post-COVID could be noted as ‘medium’, instead of the ‘high’ level from pre-COVID.

#### *4.1.3 BX-S3: Medium Pre-COVID Commitment, Low Supply Continuity, High Post-COVID Commitment and Affective Commitment-Based*

The third case (BX-S3) of this research is the buyer-supplier relationship between the engineering company and their supplier of semiconductor components, automatization components and packaging machinery. The relationship between the two companies has been established for 10 years.

##### *4.1.3.1 Medium Pre-COVID Commitment*

First of all, the pre-COVID commitment was on a ‘medium’ level. The relationship between the two companies has been good all around, but no intensive investment has been done in trying to bring the relationship to the next level. S3, as well as the purchasing manager, both mentioned that in comparison with other business partners, they are not “discussing as often as they should in times before the pandemic”. Even though that was mentioned, the overall status of the relationship pre-COVID was classed as good by both parties, so this makes the pre-COVID commitment medium for this case.

##### *4.1.3.2 Low Supply Continuity*

The supply continuity in this relationship was not good throughout the pandemic, which is scored low. Global scarcity of the resources that S3 needed to produce their components was the cause of this. A shortage of natural resources, such as “micro-

chips”, made it hard for S3 to realize the delivery time they agreed on with the engineering company. S3 also mentioned that they prioritized their bigger customers, which also negatively influenced the supply continuity of the engineering company. The engineering company already thought that S3 was doing this, but did not know it for sure. This caused some frustration in the relationship. However, the relationship did not disappear.

#### *4.1.3.3 Affective Commitment*

Because of the 10 years they have been working together, both parties did not see a reason to quit the business relationship. The overall cooperation across these 10 years was good, so therefore they try to maintain that high-valued relationship by communicating more during the pandemic, which shows that affective commitment is dominant in this relationship. Especially, because the buyer mentioned that the prices are not necessarily cheap from S3, but they appreciate the quality and the security of working with favorable business partners.

#### *4.1.3.4 High Impact of COVID and High Post-COVID Commitment*

The impact of COVID on this relationship has been high. COVID made both parties realize that they should communicate more often with each other, which they did not do that much pre-COVID. This was because the relationship already existed for around 10 years, which made them expect the other company to just “do their job”. However, in today’s world of business, where changes are happening every day, it is “crucial to keep in touch with your business relations, especially during disruptions (like COVID)” (according to S3). Therefore, the impact of COVID can be seen as high in this relationship, in both a positive and negative way with regards to the relationship.

Following from this, COVID made it clear to S3 to start investing more into commitment with the engineering company. “You need to be prepared for special events like the pandemic to make sure you can maintain high-valued business relationships” (according to S3). This shows that COVID made clear to S3 that commitment levels should be increased, through joint buyer-supplier efforts (efficient planning together, thinking of solutions for the other party when they need help). The buyer also mentioned that they felt the perspective changed from S3 on commitment and that they showed more interest in the business operations of the engineering company. Therefore, the post-COVID commitment has increased from pre-COVID, to a high level, because they are focusing on commitment in the short term.

#### *4.1.4 BX-S4: Medium Pre-COVID Commitment, Low Supply Continuity, Low Post-COVID Commitment and Calculative Commitment-Based*

The fourth case (BX-S4) is the buyer-supplier relationship between the engineering company and its supplier of electrotechnical components. The relationship exists for around 10 years.

##### *4.1.4.1 Medium Pre-COVID Commitment*

First of all, the pre-COVID commitment level is classified as ‘medium’. Both companies felt that they are in a high-valued relationship where they knew what the worth of the other company was in the relationship. However, comparing this to other business relations, the amount of contact was less than with

their core business partners. This makes the pre-COVID commitment medium.

##### *4.1.4.2 Low Supply Continuity*

The supply continuity has been not good. The pandemic created big logistic issues at the site of S4. They were not capable to arrange all the transport they needed, which caused high lead times. Even though these lead times became really long, S4 was capable of eventually delivering the goods to the engineering company, but much later than was originally agreed. Therefore, the score on this component is low.

##### *4.1.4.3 Calculative Commitment*

The dominant dimension of commitment in this relationship has been the calculative side of commitment. Even though, the representative of S4 mentioned that he is always willing to meet the buyer in person and wants to plan ahead for the future, the most important is the good terms and conditions in the contracts that are made. The buyer mentioned that the way in which the firms are cooperating there is not really something “special”, but the prices are just really good for the electrotechnical components. Also from the perspective of S4, the engineering company always pays the initial price that is being stated in negotiations. So, both dimensions are there, but the most important in this relationship is the calculative side of commitment.

##### *4.1.4.4 High Impact of COVID and Low Post-COVID Commitment*

During the pandemic, S4 saw that it had to invest more into the relationship to maintain the relationship. Therefore, the account manager of S4 tried to sell more kinds of goods to the engineering company, so that they could collaborate even more and strengthen their relationship. However, from the buyer’s perspective, this was not appreciated, because the prices they asked for different products were way too high. Therefore, COVID had a big impact on the relationship, where S4 was investing in strengthening the relationship, but this was not appreciated by the engineering company. Because commitment is a desire to maintain a high-valued relationship, that has to come from both the buyer and supplier, the level of commitment has gone down, because of this “pushing way of trying to sell more products to the engineering company” (according to the buyer).

#### *4.1.5 BX-S5: Low Pre-COVID Commitment, Low Supply Continuity, Low Post-COVID Commitment and Calculative Commitment-Based*

The fifth (BX-S5), and final case of this research is the buyer-supplier relationship between the engineering company and its supplier of signalization components. The relationship has only been established for around 4 years.

##### *4.1.5.1 Low Pre-COVID Commitment*

The pre-COVID commitment in this relationship can be classified as low. Both companies did not work together for that long before the pandemic, so there was not really time to make sure commitment levels were high (according to S5 and the buyer). Next to that, the buyer rather bought signalization



components from other suppliers in Germany. The quality was higher there, but because lead times were too long, they switched to S5. Moreover, “the total costs for signalization components did reduce massively when we switched to S5” (according to the buyer). The communication was always via email and on the phone and there were not a lot of meetings organized to discuss plans for the future. Therefore, the general commitment in pre-COVID times, can be classified as low.

#### *4.1.5.2 Low Supply Continuity*

The supply continuity has not been good. According to the buyer, “we need to really push them to deliver their goods on time, if we don’t want to end up in trouble”. However, S5 mentioned that there is a big scarcity of “granulate” and that the production of PCBs (Process Control Blocks) was being “shut down due to the pandemic and shortage of staff”. All in all, the supply continuity can be seen as low, which makes it a non-continuous supply of resources for the engineering company.

#### *4.1.5.3 Calculative Commitment*

The dominant dimension of commitment in this relationship is calculative. The buyer mentioned that the previous suppliers of signalization components had higher prices, whereas S5 has more reasonable prices for their components. This was the reason the buyer switched to them. Because the relationship between the two companies is not established for that long, both of them do not see affective commitment yet, even though the cooperation is on a satisfactory level. Therefore calculative commitment is dominant here.

#### *4.1.5.4 Medium Impact of COVID and Low Post-COVID Commitment*

The pandemic has not shown significant importance for both companies to start investing heavily into commitment within this relationship. The general terms and conditions with regards to prices are the most important to the buyer. S5 did not mention anything that they are willing to invest a lot into commitment, because their main task is to get their stock levels up and start to meet delivery times. S5 also mentioned that eventually “times could change again, where business will be as usual and the importance of commitment becomes less than expected”. Therefore, it could be noted that there has been a medium impact of COVID on the relationship, and that the post-COVID commitment will stay at a low level for the near future.

### **4.2 Cross-Case Comparisons**

The individual cases can be compared to see if there are any trends going on in multiple cases. Four main trends have been observed, which will be further discussed in the following subsections.

#### *4.2.1 High-Level Pre-COVID Commitment and the Influence on Supply Continuity*

First of all, pre-COVID commitment positively influenced supply continuity for this specific industry to some extent. Starting with the first two cases, both of them had a high level of pre-COVID commitment. However, in BX-S1 the supply continuity (high) was better than in BX-S2 (medium). The main reason for this was the fact that S1 had way higher levels of stock

than S2. This can be clarified through the fact that S1 is the market leader in the industry, whereas S2 is a smaller company. Nevertheless, BX-S3, BX-S4 and BX-S5, did not show a high level of commitment pre-COVID and did not achieve supply continuity at all. Therefore, it could be that pre-COVID commitment does influence supply continuity, whenever scarcity of resources is negligible. In this industry, the scarcity of resources does influence the supply continuity, which therefore somewhat interferes with the causality between pre-COVID commitment and supply continuity. Nevertheless, the cases with the highest pre-COVID commitment had the best supply continuity.

#### *4.2.2 Different Dimensions of Commitment and the Relative Influence on Post-COVID Commitment Levels*

Calculative commitment is more common in buyer-supplier relationships where there is less post-COVID commitment than in relationships where there is high post-COVID commitment. In those relationships with high post-COVID commitment, affective commitment is more dominant. In the last two cases (BX-S4 and BX-S5), calculative commitment was dominant in the relationship. Besides that, both of these cases also turned out to have low post-COVID commitment levels. This is a noticeable observation, which can be clarified through both parties not really seeing the importance of investing in commitment, when calculative factors are satisfactory. This is different in the cases where affective commitment is dominant, where companies do see the importance of investing in intensive relations management to ensure supply continuity and good cooperation. In these cases (BX-S1, BX-S2, BX-S3), the post-COVID commitment turns out to be higher as well, than in the other cases (BX-S4 and BX-S5).

#### *4.2.3 The Impact of COVID on Post-COVID Commitment Levels*

The impact of COVID on post-COVID commitment levels does vary in the different buyer-supplier relationships and contains several mediating factors that influence this impact. From all the cases, the impact of COVID on the relationship can be classified as either ‘high’ (BX-S1, BX-S2, BX-S3 and BX-S4) or ‘medium’ (BX-S5). However, the post-COVID commitment levels do vary from case to case. BX-S1 has a ‘high’ post-COVID commitment level, whereas for example BX-S4 has a ‘low’ post-COVID commitment level. The impact of COVID is really broad and influences many factors in a business, which clarifies why the post-COVID commitment levels do vary. For example, in BX-S1, COVID has made clear that the high-valued relationship should be maintained through effective communication. However, in BX-S4, both companies do not see the importance of investing in commitment post-COVID, because the relationship is more about calculative, rational factors. Therefore, a relationship can be observed between COVID and post-COVID commitment levels, but there are several mediating factors that influenced the impact of COVID (for example logistic issues and scarcity of resources).

#### *4.2.4 Low-Level Pre-COVID Commitment and the Influence on Supply Continuity*

Finally, BX-S5 showed to have low pre-COVID commitment and also the lowest supply continuity out of all the individual cases. However, the causal relationship cannot be drawn directly

from this case, as the natural scarcity of resources played its part. Nevertheless, it is a noticeable observation from Table 3, which could leave room for discussion in this case.

## 5. DISCUSSION

The research question during this research was: “How did pre-COVID commitment within buyer-supplier relationships help companies acquire resources during COVID and how did COVID affect post-COVID commitment within buyer-supplier relationships?”. The research gap derives from linking COVID (as a disruption) to commitment (two-dimensional; affective and calculative), by comparing pre- and post-COVID commitment levels and seeing to what extent this influenced a company by acquiring its resources. The main trends that were observed during the cross-case comparisons between the individual buyer-supplier relationships provided an answer to the research question that is threefold.

First of all, pre-COVID commitment did play a role in stimulating the continuity of supply during the pandemic. Although there was a natural scarcity of resources for the suppliers to produce their goods for the engineering company, the cases in which high levels of pre-COVID commitment were observed, had better supply continuity. A reason for that could be the intensive relationship management between the buyer and supplier in this relationship. Secondly, in relationships where calculative commitment was dominant, a lower post-COVID commitment level was observed. In relationships where affective commitment was dominant, a higher post-COVID commitment level was observed. It seems that calculative commitment needs to be on a satisfactory level, but to realize high post-COVID commitment, affective commitment is more important. This considers the intention for both parties to keep cooperating because of their appreciation towards each other. Thirdly, COVID has had an impact on post-COVID commitment. On the one hand, it made companies more aware of the need for effective communication and transparency in their relationship, which stimulated companies to invest in commitment. On the other hand, COVID caused big logistic supply chain issues (related to for example transport), which reduced commitment levels, as suppliers were not able to meet the initial lead times that they set for their buyers and did not communicate this well towards the buying firm. Therefore the impact of COVID on post-COVID commitment varies, which can be seen in Table 3. Some cases had a rise in their commitment levels with a high impact of COVID, whereas in other cases, the commitment declined. The suppliers in the different cases supply the buying firm with different goods, which made the impact of COVID differ from case to case.

### 5.1 Implications for the Literature

This study provides new insights into commitment during a disruption, as well as how COVID has influenced post-COVID commitment within buyer-supplier relationships.

First of all, other dimensions of buyer-supplier relationships, apart from commitment, also play their part in acquiring resources, especially during a disruption. The buying firm's degree of effort to have a long-term relationship with their supplier is what is the definition of a buyer-supplier relationship, which includes multiple factors (Anderson & Weitz, 1992; Morgan & Hunt, 1994; Krause & Ellram, 1997; Haugland, 1999; Cooray & Ratnatunga, 2001), such as trust, communication, cooperation, interpersonal relationship and power-dependence. In this research, these other dimensions are not being discussed, whereas in the literature they are most of the time connected to

commitment. Therefore, this shows an implication for the literature, because of the internal linkage between all the different dimensions of buyer-supplier relationships (Wetzels, De Ruyter, & Van Birgelen, 1998, p. 413). Moreover, multiple studies see satisfaction, trust and commitment as the three core variables of exchange-based relationships (Choi & Hartley, 1996; Carr & Pearson, 1999; Johnston, McCutcheon, Stuart, & Kerwood, 2004; Li, Ragu-Nathan, Ragu-Nathan, & Rao, 2006; Özer & Zheng, 2017; Newell, Ellegaard, & Esbjerg, 2018; Özer, Subramanian, & Wang, 2018; Agarwal & Narayana, 2020). In this research, only commitment is considered, which leaves the other two variables undiscussed, which is not correct according to this literature stream, because they go hand in hand with each other.

In the literature, joint buyer-supplier efforts are one of the most important factors when improving the level of commitment within a buyer-supplier relationship (Matopoulos, Didonet, Tsanasidis, & Fearn, 2019). However, in this research, it shows that it can also negatively affect commitment levels, when joint buyer-supplier efforts are not appreciated by one of the two companies in the relationship. In BX-S4, S4 tried to get more and more cooperation established between the companies, but because the engineering company did not appreciate it, it affected post-COVID commitment negatively. Then again, COVID does play its part as well, where the possible uncertainty of the pandemic did somewhat account for the fact that the engineering company did not want to get involved in this.

In this research, there was a split between buyer-supplier relationships in terms of the dominant dimension of commitment. Three out of the five cases had affective commitment as the dominant dimension, whereas two of them did have calculative commitment as the dominant dimension. These cases all had different commitment levels, where the dominant calculative commitment cases were the lowest (pre- and post-COVID). There was not really an improvement in these specific cases throughout the pandemic. The theory suggests that during a disruption, companies are less likely to switch suppliers or seek for alternatives (Wilson & Vlosky, 1998). In the analyzed buyer-supplier relationships, no switching behavior occurred during the pandemic, and many of the relationships were established for more than 10 years (four out of five), so that underwrites the theory. However, some of the suppliers supply the engineering company with similar goods, so some of them could be seen as alternatives to each other (for example in BX-S1 and BX-S3, where the engineering company could get the automatization components solely from S1). When calculative commitment is dominant, companies tend to seek for considerable alternatives (Wetzels, De Ruyter, & Van Birgelen, 1998; Rather, Tehseen, Itoo, & Parrey, 2019), but in this case that did not happen.

Going back to the literature, it was supposed to be likely that COVID had an impact on post-COVID commitment. Disruptions show the need for synergy (Zhang, Srivastava, Eachempati, & Yu, 2021) and should provide more continuous supply throughout a period of uncertainty (Nagurney & Qiang, 2019). Looking at the findings from this research, the impact of COVID on the individual relationships has been high. It made companies more aware of the importance of commitment in buyer-supplier relationships. As the pandemic started, uncertainty arose and this made it essential for companies to start communicating more. However, this does not directly translate into higher post-COVID commitment levels. As can be observed from Table 3, there was only a rise in commitment level in BX-S3, and even a decline in BX-S2 and BX-S4. This is different than what the theory suggests.

## 5.2 Managerial Implications

The findings of this research created several managerial implications. Generally, this research has shown that higher commitment levels created higher supply continuity in buyer-supplier relationships. Therefore, managers should consider the importance of commitment and intensively invest in it when looking for security when it comes to the supply of resources.

Next to that, the factors that are mentioned in the literature review that influence the different dimensions of commitment should be monitored. Monitoring these can be done by KPIs, such as supplier satisfaction or lead times, that are linked to these factors. In that way, managers can be aware of what they need to improve when it comes to their management of commitment. Intensive relations management has proven to be effective, where BX-S1 showed high levels of commitment, especially on the affective commitment dimension. BX-S1 had the best supply continuity, which showed the engineering company that investing in commitment is crucial. Also, several cases have shown that there are various tools that could be used to generate commitment in their buyer-supplier relationships. These are: intensive relationship management through CRM systems, continuous and effective communication and joint buyer-supplier efforts to take on projects together.

Moreover, the engineering company got a better insight into how the perspective of their suppliers was on the buyer-supplier relationships. They know now what relationships are already on a good commitment level and what relationships need more attention. Take for example BX-S1. This is a high-valued relationship with their core supplier that is on a high commitment level, where both parties share the investment into the relationship equally. That relationship needs to be maintained, however, other relationships need more investment. Especially BX-S4, where there have been pushing efforts from S4 to invest more in joint buyer-supplier cooperation. This was not appreciated by the engineering company, because it looked like S4 was trying to sell more products than the engineering company needed. Through the interviews, it became clear that S4 wanted to do that to combine strengths and take projects on together. This has already been put into practice. They are starting to invest more into commitment in the relationship, through an updated CRM system where the progress in the cooperation with a client is noted down. This could see commitment levels rise in the near future.

## 5.3 Limitations and Future Research

For this research, there are several limitations. First of all, the perceptions of the people that were interviewed (representatives of the suppliers and the purchasing manager from the buying firm) are leading in the findings section. That does not necessarily mean that they represent the perception of the complete organization or from outsiders. Maybe it would have been better to integrate the perspective of multiple people in the organizations, but due to time constraints, this was not possible.

There are also some implications regarding this method of conducting research and analyzing the results. First of all, there are some factors that are not considered in this research. The conceptual model that was used in previous research (Wetzels, De Ruyter, & Van Birgelen, 1998) also considered the other dimensions of buyer-supplier relationships (e.g. trust, dependence, etc. as antecedents for commitment. This is not included in the model that was designed regarding the research question of this thesis. Therefore, this could be a suggestion for further research to investigate if these antecedents individually

also contribute to pre-COVID commitment levels and acquiring resources, as well as the post-COVID commitment levels.

A multiple-case study approach has been chosen for this research, whereas it is quite time-consuming (Andresen & Istad, 2019) and not recommended to conduct individually (Yin, 2003), based on multiple previous studies (Chen & Xu, 2015; Happonen, 2016). It could have been better to conduct a singular case study (one buyer-supplier relationship), to dive deep into the factors that influenced the levels of commitment during a disruptive event in a specific relationship. Now, with the multiple case study approach, more cases are analyzed, but less in-depth, which provides a relatively shallow answer to the research question.

Thirdly, this research was based on a firm that is based in the engineering industry. Before starting this research, it was really interesting to investigate how commitment could have prevented some issues in this industry from occurring. On the news, there was a lot of information about the shortage of raw materials that were used to make components for this industry. However, by only conducting research on this industry the research question gets an answer that is not generally representative. Therefore, it could have been better to investigate buyer-supplier relationships in multiple industries instead of just sticking with the engineering industry. Next to that, the natural scarcity of resources in the engineering industry was a big factor in the supply continuity. Therefore, the link between pre-COVID commitment and continuous supply during COVID is not solely depending on each other, but also on external factors. To improve this, different industries and multiple source data should have been included in this research to make up for that limitation, according to the literature (Mason-Jones & Towill, 1997; Nyaga, Whipple, & Lynch, 2010; Agarwal & Narayana, 2020).

Finally, this research has shown that there is still lots to explore in the commitment dimension of buyer-supplier relationships. By addressing the need for commitment in those relationships, especially in times of disruption, it could be interesting to see how that differs in the future (Kauffman, Khoja, Adams, & Coy, 2017). Besides that, commitment in relationships tends to be driven by many factors, such as trust (Morgan & Hunt, 1994), power (Zhao, Huo, Flynn, & Yeung, 2008) and information sharing (Nyaga, Whipple, & Lynch, 2010; Dubey, Gunasekaran, Childe, Papadopoulos, & Helo, 2018). In this research, those factors have not been studied intensively. Therefore, for future research it would be interesting to study these variables and see how they influence commitment in their own way. Linking this to a disruptive event as well could be an addition to the scope for studies in the future.

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## APPENDIX

### Appendix A: Definition of key concepts in the interview protocol for interviewees.

Concept	Definition
Buyer-supplier relationship	“the buying firm’s degree of effort to have a long-term relationship with their supplier (Anderson & Weitz, 1992; Morgan & Hunt, 1994; Krause & Ellram, 1997; Haugland, 1999; Cooray & Ratnatunga, 2001), including information exchange (Hendrick, 1995; Sánchez-Rodríguez, Hemsworth, & Martínez-Lorente, 2005), benefit sharing (Ellram, 1991) and joint problem-solving (Hendrick, 1995; Campbell, 1997; Claycomb & Frankwick, 2010)”
Commitment	“an enduring desire to maintain a valued relationship” (Moorman, Zaltman, & Deshpande, 1992, p. 316)
Affective commitment	“a desire to maintain a relationship with a buyer or supplier, because they <b>like</b> each other (Davis-Sramek, Droge, Mentzer, & Myers, 2009)”
Examples of factors influencing affective commitment	“trust in the benevolence and honesty between both parties” (Wetzels, De Ruyter, & Van Birgelen, 1998) / good contact / kindness (Rather, Tehseen, Itoo, & Parrey, 2019)
Calculative commitment	“calculative commitment is focused on the economic / rational reasons behind maintaining a buyer-supplier relationship” (Davis-Sramek, Droge, Mentzer, & Myers, 2009)
Examples of factors influencing calculative commitment	service quality, costs/prices, lead times, economies of scale (Davis-Sramek, Droge, Mentzer, & Myers, 2009)

### Appendix B: Interview protocol supplier.

Questions	Answer
1: How do you describe the relationship before COVID?	
2: How do you describe the relationship right now?	
3: Is there any change and if so, is that because of COVID or something else? Explain by examples.	
4: Commitment is a desire to maintain a valued relationship between two companies. This can be either through affective commitment (when they like to cooperate and to work together, because the other party is friendly, is open to help the other party out, etc.) or calculative commitment (good terms and conditions, good prices, high service quality, etc.). The question is: <b>“What did you do pre-COVID with regards to commitment? Provide examples by linking them to the different dimensions of commitment”</b> .	
5: Have you been able to supply company X consistently throughout the pandemic? Did commitment influence that?	
6: What effect did you observe when you were investing in commitment? How did it benefit your organization?	
7: Why are you working together? What are the advantages and disadvantages?	
8: What dimension of commitment has more focus in your organization when dealing with other companies / customers: the affective or calculative commitment dimension? Explain by examples.	
9: What are the differences between commitment levels pre-COVID and right now? Please give examples.	
10: How do you feel COVID has changed the perspective from your company on the relationship? If so, explain what caused the changes.	
11: Are you currently investing in the relationship to raise commitment levels? If so why, or why not and how?	

12: Which of the two commitment dimensions are you currently investing in? Please give examples.	
13: Do you think COVID has had an impact on your commitment levels? Why or why not and in what way?	
14: How has the pandemic addressed the need for commitment within buyer-supplier relationships? Please explain.	
15: In what way has your pre-COVID commitment helped you to acquire resources during the pandemic? Provide examples what did or what did not help you during the pandemic.	
16: Do you think company X has invested in commitment within the relationship? If so, what have they done and how did it influence the relationship?	
17: Do you feel like the effort to invest in commitment has been equal for both companies? Please explain by examples.	
18: What kind of dimension of commitment is dominant from the buyer's perspective towards your company? Explain with examples.	
19: How has COVID influenced the perception of your organization on commitment? Are you investing more or less right now in commitment? Please provide examples.	
20: What will the future look like with regards to this buyer-supplier relationship and the commitment levels? Will there be changes and if so, how will it change?	

**Appendix C: Interview protocol buyer (purchasing manager from company X).**

Questions	Answer
1: How do you describe the relationship before COVID?	
2: How do you describe the relationship right now?	
3: Is there any change and if so, is that because of COVID or something else?	
4: Commitment is a desire to maintain a valued relationship between two companies. This can be either through affective commitment (when they like to cooperate and to work together, because the other party is friendly, is open to help the other party out, etc.) or calculative commitment (good terms and conditions, good prices, high service quality, etc.). The question is: <b>“What did you do pre-COVID with regards to commitment? Provide examples by linking them to the different dimensions of commitment”</b> .	
5: Have you observed commitment in the relationship with supplier X? What effect did you observe and how has it influenced the relationship?	
6: What effect did you observe when you were investing in commitment? How did it benefit your organization?	
7: Why are you working with supplier X? What are the advantages and disadvantages?	
8: How has the supply of goods been; were you able to acquire the resources you needed throughout the pandemic? Provide examples.	
9: What dimension of commitment has more focus in your organization when dealing with other companies / customers: the affective or calculative commitment dimension? Explain by examples.	
10: What are the differences between commitment levels pre-COVID and right now within relationships with your suppliers? Please give examples.	



11: How do you feel COVID has changed the perspective from your company on the relationship? If so, explain what caused the changes.	
12: Are you currently investing in the relationship to raise commitment levels? If so why, or why not and how?	
13: Which of the two commitment dimensions are you currently investing in? Provide examples.	
14: Do you think COVID has had an impact on your commitment levels? Why or why not and in what way?	
15: In what way has your pre-COVID commitment helped you to acquire resources during the pandemic? Provide examples what did or what did not help you during the pandemic.	
16: How has the pandemic addressed the need for commitment within buyer-supplier relationships? Please explain.	
17: Do you think supplier X has invested in commitment within the relationship? If so, what have they done and how did it influence the relationship?	
18: Do you feel like the effort to invest in commitment has been equal for both companies? Please explain according to examples.	
19: What kind of dimension of commitment is dominant from the supplier's perspective towards your company? Explain with examples.	
20: How has COVID influenced the perception of your organization on commitment? Are you investing more or less right now in commitment? Please provide examples.	
21: What will the future look like with regards to this buyer-supplier relationship and the commitment levels? Will there be changes and if so, how will it change?	

**Appendix D: Link of interview questions to concepts.**

Combination of questions:	Linked to:
Q1, Q2, Q7	Overall summary of the relationship
Q3	How did COVID affect the relationship
Q4, Q5	Pre-COVID commitment of the organization
Q5, Q15	Acquiring resources during the pandemic
Q6, Q8, Q11, Q12	What dimension of commitment is dominant or more important
Q9, Q10, Q13, Q14	How COVID influences the perspective of the organization on commitment
Q16, Q17, Q18	Turning the perspective from own company to the other, gaining information the other way round on the relationship and commitment
Q19, Q20	How has COVID affected post-COVID commitment in buyer-supplier relationships