

# What is the Effect of Covid on Different Trust Levels among Supply Chain Relationships?

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## ABSTRACT,

*Many existing studies have focused on trust development in various commercial interactions. Trust has become increasingly crucial in Supply Chain Management, and many academics have tried to identify possible practices to increase trust development in supply chain relationships (SCRs) and to mitigate its negative effect of disruptions, such as Covid. Drawing on previous literature, this study examines the effect of Covid on different trust level's ability, benevolence, and integrity used for trust measurements, based on the trust concept of Mayer et al. (1995). A qualitative, multiple-case study was conducted analyzing three different SCRs. Additionally, the impact of the disruptions through Covid on the occurrence of challenges and opportunities for the relationships were analyzed. The findings yield some interesting insights. Firstly, Covid acts as an amplifier on different trust levels among supplier and buyer relationships. Secondly, the study reveals that the decreased trust relationship encountered the most challenges through the disruptions but also captured opportunities. Increasing trust relationships showed more resilience against Covid and did not deal with challenges on SCRs but solely gained improvement opportunities.*

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## Keywords

Supply Chain Management, Trust, Buyer-Supplier Relationship, Trust Development, Covid-19, Disruption

## 1. INTRODUCTION

Since 2019, when the Covid pandemic started, doing business as usual is not possible anymore due to severe global supply chain disruptions (Chowdhury et al., 2021; Ivanov, 2020). In the past, SCR gained much attention since research found that the interplay between buyer and supplier increase both entities' operational efficiency and financial performance (Xiao, 2021). Organizational trust is essential during disruption since it fosters participants to navigate and adapt to changes and challenging situations. This needs organizational agility and resilience (Gustafsson et al., 2020). Trust is crucial because it is easier to maintain consistently good quality, which is a key source of competitiveness, in a high-trust production system than in a low-trust one (Sako, 1992). The management literature states clearly that high-trust entities outperform low-trust entities and that explicitly utilizing trust as a management tool is an efficient way to manage future entities (Jagd, 2008). Trust is multi-dimensional. Several concepts have emerged that describe trust (Doney & Cannon, 1997; Mayer et al., 1995; McAllister, 1995). Mayer et al researched cause, nature and effect of trust and developed a trust concept which includes ability, benevolence, and integrity as main antecedents for trust. In their research trust becomes important wherever uncertainty or interdependence exists (Mayer et al., 1995). Uncertainties like Covid challenged SCRs (Stammarnäs & Wulff, 2021) and it is shown that transformative change challenges trust (Sørensen et al., 2011). This indicated that covid has an effect of trust between the buying and supplying firm. Yet, trust development and further changes in SCR due to covid are unclear. There is a significant connection that trust is the key to developing and maintaining business relationships and reducing uncertainty (Gounaris, 2005; Kamers, 2015; Morgan & Hunt, 1994; Sahay, 2003).

Previous research on trust found that a higher level of trust is correlated with higher performance (Botwe et al., 2016), benefit from satisfaction, enhanced performance (Johnston et al., 2004), increased inter-firm learning (Fawcett et al., 2012), reduced relational conflict (Zaheer et al., 1998) and overall improvement cooperation (Palmatier et al., 2018). Besides this, there is more research about changing trust levels in organizations (Jagd, 2008) and trust dynamics in supply chain collaboration (Daudi et al., 2016). Also, studies on the Covid disruption have been made. Such as Ikram et al. who researched the intensifying effect of Covid on logistics performance and economic growth in Asian countries (Ikram et al., 2021). Even trust during the pandemic has been studied. According to findings of Kye and Hwang social trust changed and either increased or decreased for specific social institutions (Kye & Hwang, 2020). Since SCRs are affected by disruptions such as declining sales, increasing costs or service failures (Park et al., 2016), a conclusion can be drawn that SC relationships change during challenging times. Nevertheless, research about the influence of Covid on different trust levels within SCRs remains unclear. Therefore, this study researches the effect of Covid and different trust levels within SCRS, leading to the research question, *"What is the effect of Covid on trust levels among supplier and buyer relationships?"*

This study investigates the impact of Covid on various trust relationships. How Covid affects the level of trust in low, medium/high, and high trust relationships, and how each trust relationship handles the disruptions throughout Covid. It considers how the disruptions create challenges and /or opportunities on the SCRs dependent on the different trust levels. A qualitative multiple case study approach has been

applied to answer the research question. The applied research model includes the three antecedents of trust. Since one expects that the COVID-19 pandemic has larger and more enduring effects, analyzing the challenges and opportunities caused by the present pandemic on SCRs will help to adjust to the new conditions more effectively and secure the future of supply chain practices. It will assist in minimizing disruptions.

The findings of this research contribute to new perspectives of Covid on trust relationships and the supply chain in three parts. Firstly, this research shows that Covid has an effect of trust among SCRs. Covid acts as an amplifier to bad or good trust relationships which contributes to existing literature (Ikram et al., 2021; Ojajarvi, 2022). Secondly, decreasing and increasing trust during Covid is in line with the findings of Kye and Hwang who show this during disruptions (Kye & Hwang, 2020). High trust is crucial between buyer and supplier since that mitigates challenges due disruptions, as Covid, which is shown in this study. Thirdly, this research reveals that low trust relationship suffers the greatest from Covid as trust decreases and multiple challenges on the relationship occur. This finding aligns to previous research (Stammarnäs & Wulff, 2021).

## 2. THEORY

### 2.1 Trust concept

Trust is multi-dimensional and even called a 'conceptual confusion' (McKnight & Chervany, 2014) due to psychological, sociological, management and dimensional economic concepts. Mayer et al. defined trust as 'the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party' (Mayer et al., 1995). The chosen concept of organizational trust from Mayer et al., 1995 fits this research because it focuses explicitly on business relationships. The trust concept is based on trust only being dyadic (Sahay, 2003). Mayer et al. proposed three antecedents being the most important characteristics, which are ability, benevolence, and integrity of a trustee. The concept differentiates the trustor who has a specific need to fulfil and the trustee (the one to be trusted) who has the potential to satisfy that need (Chopra & Wallace, 2003). To summarize, both the trustor's intention to trust and the trustor's perceptions of the trustee's ability, benevolence, and integrity must be determined in order to measure the amount to which a person is willing to trust another person. If the trustee's ability, benevolence, and integrity are all regarded as high, he or she will be considered quite trustworthy (Mayer et al., 1995).

#### 2.1.1 Ability

Ability is one of the essential characteristics of trust, which multiple studies have shown (Deutsch, 1960; Jones et al., 1975; Mayer & Davis, 1999; McAllister, 1995). Ability is how a trustee has a set of skills and competencies that enable him or her to exert influence in a particular performance area (Mayer et al., 1995). Moreover, it is a cognitive indicator of trustworthiness and supports cognitively based trust (McAllister, 1995). As stated by Mayer et al. (1995), a trustee is perceived as trustworthy and therefore enjoys high trust if all three trustworthiness characteristics are high.

#### 2.1.2 Benevolence

The second antecedent is benevolence and is defined as the extent to which a trustee is perceived as wanting to do good to the trustor in a relationship, other than a self-centred profit motive (Mayer et al., 1995) and reflects an emotional reason to trust (Colquitt et al., 2012). Doney and Cannon defined

benevolence as one party is interested in the other parties' best interest (Doney & Cannon, 1997). Supportiveness and loyalty also express benevolence.

### 2.1.3 Integrity

Integrity is the extent to which a trustee adheres to a set of acceptable rules/values (Mayer et al., 1995a). Just as ability, integrity also adds to cognitive-based trust (Dirks & Ferrin, 2002). The presence of integrity in a relationship makes the trustor reliable and dependable (Jarvenpaa et al., 1997), and acting with integrity means behaving consistently and honestly. Integrity refers to the openness of an exchange party in a relationship. Different studies have integrated integrity in their trust model and stated that integrity is inevitable when establishing trust in a relationship (Butler, 2016; McAllister, 1995; Tzafrir & Dolan, 2004).

## 2.2 Disruptions through Covid-19 in buyer-supplier relationships

According to the Institute of Supply Management (ISM), about 75% of the companies reported supply chain (SC) disruptions (in 2020) (Magableh, 2021). Uncertainties and complexities increase risks and unforeseen disruptions in the supply chain (Park et al., 2016). It is essential and required to jointly work together to reduce the negative impact on the business performance (Kyu Kim et al., 2011). The supply chain is a type of sector that faces several challenges because of global uncertainty, such as Covid-19 (Schumacher et al., 2021). The intensity of the challenges varies according to the severity of the occurrence (s).

Unlike other disruptions, Covid starts small but grows fast and appears globally. However, research on how Covid influences SCRs with different levels of trust remain underdeveloped. When a disruption occurs, relationships with different trust levels could be influenced uniquely by Covid. For example, Bode et al. (2011) state that information needs and responses depending on the trust level in the other party (supplier or buyer) occur during SC disruptions (Bode et al., 2011). Others express that disruption can harm the belief in the supplier's/buyer's ability, benevolence and integrity and thus damage trust (Kramer, 1999). Minor damage to trust between supplier and buyer during a disruption positively influences continuing and maintaining the relationship in the future (Anderson & Weitz, 1989; Wang et al., 2014). Damage to trust due to supply chain disruptions is associated with uncertainty, and the potential risk of replacement is increased. Nevertheless, if the damaged trust is successfully mitigated, buyers are more likely to regain trust in their suppliers and continue the relationship into the future with an undetermined endpoint (Wang et al., 2014). Since trust is positively related to risk-taking (Colquitt et al., 2007), buyers are likely to take more significant risks when their suppliers have regained their trust by fixing failures than when they have not (Wang et al., 2014). Mayer et al., highlighting that trust is essential between buyer and supplier.

### 2.3 Research model

A research model is shown in Figure 1 and includes the effect of Covid on trust of SCRs. Relationships that are great in all three antecedents before the pandemic are considered to have higher trust. In contrast, those that lack one or two dimensions or have less ability, benevolence and/or integrity are deemed to trust less. The changing trust levels of SCRs face challenges and opportunities. The research model considers what influence different trust levels have on the occurrence and extent of handling these challenges and opportunities on the SCRs.

Challenges and opportunities refer to challenges and opportunities on the relationship between buying and supplying firms that have arisen as a result of Covid. They should not be confused with supply chain problems caused by covid as they are already known.

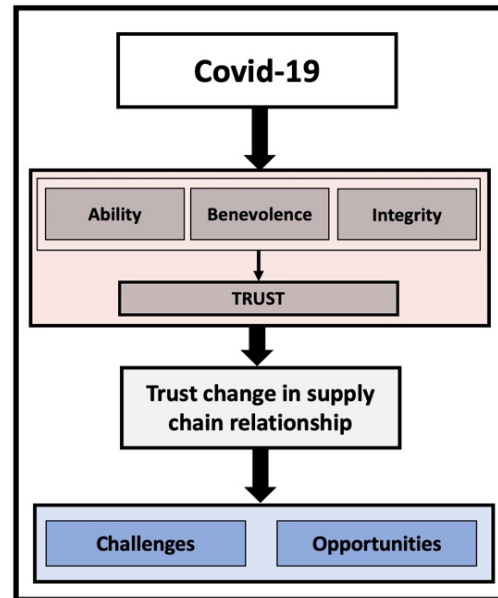


Figure 1. Research model

## 3. METHODOLOGY

This section describes the method used to answer the research question. The following parts include research selection, data collection and data analysis. This thesis aims to discover the influence of Covid on different trust levels of SCRs and its impact on challenges and opportunities on relationships. Because there is a lack of knowledge about this topic, an exploratory study research method was selected to obtain insights and better comprehend it (Churchill et al., 1996). Furthermore, one important part of this research is to compare how relationships with different trust levels before Covid performed during Covid and how trust has changed. The method of multiple case studies is preferable because it offers the opportunity to identify similarities and dissimilarities between different SCR with initially different trust levels, and to draw valid generalizations (Yin, 2011). Because there is limited knowledge about this research an exploratory study research design was used. It is beneficial in gaining insights and better understanding it (Churchill et al., 1996).

### 3.1 Case selection

As the paper's goal is to explore the effect of Covid on different trust levels among SC relationships, multiple case studies will lead to answering the research question as it grants multiple advantages (Eisenhardt, 1989). Case studies are mainly applicable for investigating real-life situations. Quantitative methods are ineffective for determining an event's fundamental cause or meaning (M. Rahman, 2020). For this reason, qualitative data gathering is most suitable. Intending to evaluate the effect of Covid on different trust levels between SCRs. It is required to choose a buyers' company that has been significantly disrupted through Covid. Participants of this study were chosen based on specific criteria. Table 1 summarizes the case selection. The interviewees of the buying firm needed

*Table 1. Case selection*

Case	Function	Interviewee	Interview duration	language	Trust level before to during Covid	Relationship length	Industry	Country of import	Turnover rating
1	Account manager (buyers' firm)	A1	15:02	German	Middle (high)→high	8 years	Furniture (bedroom)	German	highest turnover
	Buyer	B1	36:44	German					
	Supplier	S1	17:19	German					
2	Account manager (buyers' firm)	A2	21:50	English	Low→lower	7 years	Furniture (kitchen)	Asia via Spain	Middle turnover
	Buyer	B2	23:41	German					
	Supplier	B3	18:21	German					
3	Account manager (buyers' firm)	A3	34:21	German	High→slightly higher	8 years	Furniture (upholstery, armchairs)	China	Lowest turnover
	Supplier	S3	19:32	German					

to be in direct interaction with the supplying firm and the other way around.

To ensure rich and good data, suppliers, buyers, and account managers of one relationship were selected to participate in the interviews. Having different roles involved ensured to get multiple perspectives and thus guarantee valid data. Additionally, three relationships were chosen with different starting levels of trust (high, low, medium) before Covid. Explicitly, people in different roles at the supply and buying company that are in these three relationships where interviewed (case 1, 2 and 3). The buying firm provided suppliers. Almost all interviews were carried out in German except for one interview which was in English.

The buying firm is a large furniture e-commerce company in Germany with its suppliers located in the European Union, Eastern Europe and Asia. The company is procuring goods directly from Germany (C1), from Asia to Spain and then to Germany (C2) and lastly from China directly (C3). All three relationships exist for 7 to 8 years. The first relationship (C1) includes furniture products for bedrooms where the supplier has its headquarters and production in Germany. They are European wide the most significant furniture manufacturer for bedroom furniture. From the buying perspective, compared to the other two suppliers, this supplier is the one with the highest turnover. Case 2 (C2), covers the supply of products for kitchen and dining which are imported from Asia to Spain and sold from Spain to the buying company in Germany. The turnover compared to the other two suppliers is placed in-between. The interview was conducted in English with the Account manager of the respective supplier (C2). The third relationship (C3) includes products like upholstery and armchairs which are imported directly from China. The chosen supplying company is the least significant in terms of turnover. For this case, only two interviews could be conducted since the latest buyer had just left the company and the role hadn't been filled at the time of the interviews. Each of the interviewees had several years of expertise in their subject area.

### 3.1 Data collection

To answer the research question in this study, I gathered primary data. There are different ways to collect primary data, including surveys and observations (Ghauri et al., 2020). Semi-structured interviews with different participants of SCRs

provides the possibility to ask follow-up questions. This is specifically good for this research question since the supplier or buyer can talk about experiences in the past related to trust and Covid in interviews. Interviews, a method of exploratory study research design, was used since this is beneficial in gaining insights and better understanding it (Churchill et al., 1996) for this research question.

As this thesis focuses on the effect of Covid on different trust levels among suppliers and buyers, interviews were selected based on diverse levels of trust in SC relationships. Here, eight interviews were conducted in May 2022. For the seven German interviewees the interview protocol was translated. Before the interviews, the questions and a brief introduction to the study was emailed to prepare. This allows the author to collect high-quality data. According to Yin (1994), the project overview, field methods, questions, and project guide should be included in the case study protocol (Yin, 1994). This approach allowed to gather insights about how the relationship between the participants was affected relationship (Yao & Vargas-Hernández, 1997). Asking the interviewees to describe change of ability, benevolence, and integrity during Covid helps analyzing trust development later. As a result, a structure for analyzing the findings of the interviews was created. The semi-structured interview questions were detailed and pre-specified (Yao & Vargas-Hernández, 1997), and an interview methodology was developed to assure the case studies' reliability. Due to geographical distance, we organized the interviews through video conferences. Based on the key topics in the literature, the interview protocol includes questions related to the concept of trust (ability, benevolence, and integrity) and if the disruptions through Covid created challenges and opportunities on the different SCRs. An excerpt of this interview protocol is shown in Table 2 and the complete version can be found in Appendix D. Each trust antecedent belongs to two questions to measure trust. These questions explicitly ask for the difference between before and during Covid. Thereafter, four questions about change completed the interview protocol. The first six questions aim to get insight about whether there are changes in trust in the relationship. In questions 7, 8 and 9, challenges, and opportunities on SCRs during Covid related to trust were asked. The final question was designed to exclude any other reasons which could lead to changes in their relationship and trust. Since a semi-structured

**Table 2. Excerpt interview protocol**

Topic	Question	Purpose	Construct
Ability	Was the other party capable of performing its job before Covid, and is there a change now (Mayer et al., 1995)	Measuring trust using trust concept of Mayer et al. (Mayer et al., 1995)	Trust level before and during Covid
Benevolence	Could you share your ideas, feelings and hopes with the other party before the pandemic, can you do so during Covid (Mayer & Davis, 1999)?		
Integrity	Was the other party always honest and truthful before the pandemic, and in comparison, to nowadays (Robinson, 1996)?		
Change	Can you also see a positive change in your relationship due to Covid which are related to trust?	Understand the change in SC relationship regarding trust	Change due to Covid (challenges and opportunities)

interview was chosen, follow up questions were asked to get a better understanding or dive deeper into a specific topic were needed. At the start of the interviews, the agreement on participants' voluntary, informed consent to the anonymous use of their statements throughout the interview was recorded. This and additional anonymization measures were taken to comply with GDPR regulations. Table 2 presents an excerpt of the interview protocol.

### 3.3 Data analysis

Before analyzing the interviews, it is essential to mention that all interviews were recorded and transcribed for validity (Eisenhardt, 1989). A summary of the data was performed gradually and by analyzing the cases separately. The first step was to read through each interview which was transcribed by tactiq.io. Tactiq.io is a transcribing tool for zoom and google meets which does real-time transcriptions during interviews. The names of the participants are anonymous. Instead, the participants are referred to Buyer B1, Supply account manager A1 and Supplier S1, who have a relationship described in case1, such as B2, A2 and S2 in case2 and B3, A3 and S3 in case3. The data analysis method entails reading the interviews thoroughly, reflecting theoretically on specific issues of interest, and interpreting the results (Kvale & Brinkmann, 2009). Miles and Huberman (1994) separated the analysis structure into three steps: data reduction, data display, and

conclusion drawing (Miles & Huberman, 1994) as applied in this data analysis.

In the first step, data were reduced to quotes closely associated with the key construct of trust, its variables, and changes in the trust relationship due to Covid. The interview results were examined, then compiled and listed in an Excel spreadsheet. An excerpt of this table is presented in Table 3 and 4. The cases were evaluated using a within-case analysis and cross-case comparison on the semi-structured interview guide. The within-case analysis is presented in the following section deriving the findings. It will start with the main conclusions of each case followed by a cross-case analysis. As indicated by Eisenhardt, a cross-case analysis was undertaken to acquire a deeper understanding and examine the outcomes (Eisenhardt, 1989). When it comes to construct validity, a lot of research goes into how the measurement function of operationalized constructs, such as trust works. The main conclusions of each case were sent back to the interviewees to ensure reliability. The first step of the cross-case analysis was to highlight differences and commonalities of the results from changing trust levels. The second step was to compare the impact of challenges and opportunities from the three SCRs and link occurrence and extent to different levels of trust.

**Table 3. Excerpt of Excel spreadsheet based on trust.**

Case	Trust antecedent development		Quote
C2; A2	Ability	decrease	"They were not ready from a technical part of view to separate those stock to their actual warehouse, so they were selling us product which theoretically were in stock but they weren't [...]"
C2; B2	benevolence	increase	"Before they were less willing to work with us and adapt, during we grew a lot, and in this case, we became more important as a customer and then more willing to come towards and fulfill the need we have as a customer."
C2; A2	integrity	decrease	"[...]before Covid they did not have the excuse and now I think they use it now more than needed. General 70% was cause by Covid and 30% of delay were cause by bad planning and they said 100% cause by Covid."

**Table 4. Excerpt of Excel spreadsheet based on change**

Case	Change	Quote
C1; A1	opportunity	"Perhaps some are also less shy about simply picking up the phone and asking for help. And yes, that has definitely developed positively for me, the whole collaboration."
C2; A2	challenge	"[...]hectic, difficult to get any topic of improvement moved. That was the main issue that was sort of standby in terms of improvements of process and so on because everyone was busy trying to turn of the fire, delays, getting order out and so on."
C3; S3	no opportunity nor challenge	"[...] identical for me, because we already had very good contact before and that got better rather than worse during and after the pandemic. But was always top."

## 4. RESULTS

The results chapter answers the research question *"What is the effect of Covid on trust levels among supplier and buyer relationships?"*. Trust is especially important during disruption because it develops individuals' capacity to successfully manage and adapt to disruptions, like Covid-19. However, how different (high, medium, low) trust level develop during the pandemic is undiscovered. Covid's effect on trust levels impacted challenges and opportunities on relationships, according to the multiple-case study. Covid amplified all three relationships. The decreased trust relationship (C2) caused great challenges and opportunities on the relationship. Trust increasing relationships (C1;3) did not encounter SCR challenges since they remained an open and honest discussion and tackled SC problems together. Also, more frequent, and personal exchange helped overcome challenges on their relationship. Besides, the highest trust relationship (C3) did not build on opportunities since they had an existing exemplary relationship.

### 4.1 Within case analysis

This section provides a within-case analysis. By evaluating three separate cases, the qualitative interviews were used to assess the trust level before and during Covid, as well as any changes concerning the relationship between buyers, account managers and suppliers. Additionally challenges and opportunities on each relationship due to Covid were assessed. Table 5, which shows the results from the within-case analysis, facilitates the process of trust development caused by Covid. The development is pictured by attributing a "decrease" to the dimensions that referred to performing less than before the pandemic and "increase" when cases reported performing better during Covid. Lastly, "no change" is assigned when cases state a constant level of a dimension. Consequently, an increase or decrease in trust can be determined. Furthermore, thus, answers part of the research question.

**Case1:** The relationship is trustworthy and reveals a significant increase in ability and benevolence during the pandemic. Generally this relationship had a medium/high trust level before the pandemic. Regarding the understanding of antecedent ability, both parties mentioned excellent knowledge of each other's departments and fulfilment of their tasks. Even B1 mentioned the supplying firm was one of the only ones with continuing ability to supply. As A1 indicated increased knowledge of S1 during Covid, a rise in trust is observed. Increased knowledge means that the exchange of information has increased, and so understanding of each other's processes has improved. Furthermore, via sharing experiences, both sides had a better understanding of SC issues and potential solutions. Contrary, S1 remembered, in the beginning, a decrease in the buying firm's storage capacity, which indicated a decrease in performing tasks. However, they solved this problem quickly.

The parties also experienced an increase of benevolence which was explained by B1 and A1, who pointed out an increased sharing of feelings, visions and hopes with the supplying firm. Interpersonal interaction and topics like health, for instance, grew during the pandemic. A positive change in benevolence is also derived from the following statement of S1: *"[...] the exchange through video telephony, has become even more personal."* Moreover, mutual adjustments regarding the language are described by switching from the formal "Sie" to informal "du", which is another reason for interpersonal interaction and enhanced benevolence. Regarding the third antecedent integrity, no changes occurred before and during the pandemic. The parties described the relationship as smart

casual and declared high respect towards each other, which indicates an initial high level of integrity before the pandemic. Lastly, as far as other changes in their relationship are concerned, fascinating insight derived from the interview with S1 when talking about challenges caused by Covid. Most importantly, challenges arose in the supply chain, like production stops, staff shortages, increased prices, and resource shortages. These challenges caused more effort for the SC relationship in terms of an increased number of meetings and more intense exchange about the challenging situation. S1 mentioned certain situations in which disappointment emerged; however, S1 explained that these challenges are part of day-to-day business, regardless of the pandemic or not. Through good working relationships these could always be resolved between S1, A1 and B1. Opportunities of the pandemic regarding the SC relationship and their trust are revealed as a tremendous increase in communication, as B1 reported that *"problems in the supply chain have increased [...] and it was simply indispensable to communicate more in general."* Communication not only business-related but also about the well-being and personal interests were mutually underlined. Also, closer ties can be drawn after S1 saying, *"being less shy about simply picking up the phone and asking for help has developed positively for me"*.

**Case 2:** In general, this is a less trustworthy relationship whose trust decreased even more during the pandemic. The perspectives of the buying firm and the supplying firm differed immensely. According to the buying firm, the supplying firm performed poorly and is generally unreliable; however, they are a significant supplier to the buying firm. the buying firm is an important customer to S1. S1 spoke in the best terms about the buying firm and considered the relationship trustworthy and exemplary. The case provides some interesting insights regarding each of the dimensions. According to B2 and A2, a decreased ability of S1 to perform could be observed during Covid. This decrease in performance was concluded when the buying firm described that S2 did not meet agreements or shipping dates which was previously confirmed. Also, S2 did not act on delays or other challenges as desired by the buying company. The biggest challenges the supplying firm faced were technical challenges. This got highlighted when A2 described the following challenge: *"they had the problem that their incoming orders consumed all available warehouse capacity. Goods could not fit in their warehouse and were stocked in another warehouse, and they were not ready from a technical point of the view to separate those stocks from their actual warehouse. So, they were selling us products that were theoretically in stock but were not because they were in the other warehouse where they had no access "*. Contrary, S2 stated a constant ability of the buying firm, which could be derived when S2 mentioned the buying firm helped them significantly improve technically before and during Covid.

While this case describes a decrease in ability, they encountered an increase in benevolence due to more frustration from the buying side. A2 shared more concerns with S2. Sharing feelings, visions and hopes on a business base was always the case. However, it increased during the pandemic due to more challenges communicated through frustrations and feelings towards the other party. Lastly, it can be observed that most interviewees, in that case, stated unchanging integrity except for A2. A decrease in integrity results after A2 explaining a decrease in honesty of the supplying firm. Specifically, using increasingly Covid as an excuse for shipping delays. As A2 described based on her feelings about S1, *"70% was caused by Covid, and 30% of delay were caused by bad planning, and they*

*Table 5. Detailed overview of changing antecedents of trust due to Covid*

C	Ability		Benevolence		Integrity		Trust
1	<b>Increase</b>	1) supplying firm was one of the only ones with continuing ability to supply 2) increased knowledge of S1 (significance of delivery times, adaption of deadlines and delays)	<b>increase</b>	1) an increased sharing of feelings, visions and hopes with the supplying firm. 2) increased interpersonal interaction (switching from "Sie" to "du")	<b>no change</b>	1) smart casual and declared high respect towards each other throughout	<b>increase</b>
2	<b>decrease</b>	1) unreliable: S1 did not meet agreements which were previously confirmed 2) difficulties handling increased orders due to lack of technical skills 3) S2 did not act on delays or other problems as desired by the buying company.	<b>increase</b>	1) Increased sharing of feelings, visions and especially frustration	<b>decrease</b>	1) using Covid as an excuse for shipping delays	<b>decrease</b>
3	<b>no change</b>	1) lack of knowledge of S3 about topics such as rising container prices, lockdown, shipping dates 2) knowledge of buying firm increased during Covid and new topics were discussed	<b>increase</b>	1) naturally increased a closer more open conversation and sharing of feelings due to rising problems	<b>no change</b>	1) neither A3 nor S3 observed changes due to an always close tie relationship with no concerns	<b>Minor increase</b>

said 100% was caused by Covid." Being not honest eventually can result in distrust in the other party.

Changes concerning challenges and opportunities on the relationship during Covid arose simultaneously. The problem of getting any improvements implemented was constantly a challenge, as A2 described this situation as all other projects were standing still". Moreover, hidden actions of the supplying firm caused challenges for the buying firm. This was derived from the interview with A2, stating the supplying firm made, for example, packaging changes due to increased cost without informing the buying firm, resulting in additional challenges for the buying firm. However, Covid also caused positive changes in the relationship of case 2. An improvement in working closer together and finding better solutions faster was mentioned. Also, Covid propelled the trajectory to improve technical skills. The buying firm observed S2 being more willing to work together as they got more important as a customer due to increased sales from the buying firm. A2 described Covid as the cause of making a big step forward already, whereas without Covid, it might take them 3-5 more years.

**Case 3:** The third case experienced a slight increase in trust due to the pandemic. Generally, this relationship can be described as stable and with an original high trust level before the pandemic. A slight decrease in ability is analyzed after the interview with A3, in which A3 stated that unpredictability of events, like rising container prices, lockdown or shipping dates, decreased the ability to perform to standards. Contrary, S3 mentioned increase knowledge during Covid because frequent exchange enabled mutual understanding of new processes. But also, B3 mentioned situations of being stumped when new questions arose was the case which results in a balanced ability.

Regarding benevolence, a slight increase can be observed due to sharing more hopes and feelings on a business level due to more occurring challenges in the supply chain. A3 described the situation before as inconspicuous as everything worked smoothly. Since the buying firm paid more attention to

suppliers with whom they experienced challenges, it naturally increased to a closer and more open conversation and sharing of feelings due to the rising challenges. This indicates an increase in benevolence. As far as the integrity dimension is concerned, neither A3 nor S3 observed changes in honesty due to an always honest exchange and closed ties in their relationship. This indicated a mutual high constant integrity from before to during the pandemic. Also, challenges and opportunities were not discussed in detail due to an exemplary relationship with minimal improvement potential. It can be analyzed that there is no potential for improvement due to an already excellent trust relationship.

## 4.2 Cross-case analysis

The cross-case analysis was performed to identify similarities and differences between all three relationships. With evaluating trust antecedents and challenges and opportunities on the relationship patterns between C1,2 and 3 can be analyzed. The first step was to discover which change in each antecedent has reached due to Covid. The second step is to analyze differences and similarities of occurring challenges and opportunities on each relationship related to the trust development. Clarifying with what challenges and opportunities lower and higher trust relationships dealt with is shown in Figure 2 which seizes on the research model.

### 4.2.1 Differences and similarities of trust development due to Covid

This research shows that no case experienced a constant and no changing trust level. This means that Covid influenced trust levels between buyer and supplier in all three cases. Analyzing the changes for each trust antecedent one can conclude, that the pandemic works as an amplifier and either worsens trust in low trust relationships (C2) or improves trust in medium/high trust relationships (C1,3). The antecedents of trust, namely ability, benevolence, and integrity, reveal interesting differences and commonalities in the multiple case study.

The multiple-case study showed that ability differs the most between C1,2 and 3. In particular, C1, which initially had a medium trust level, shows an increase in ability through



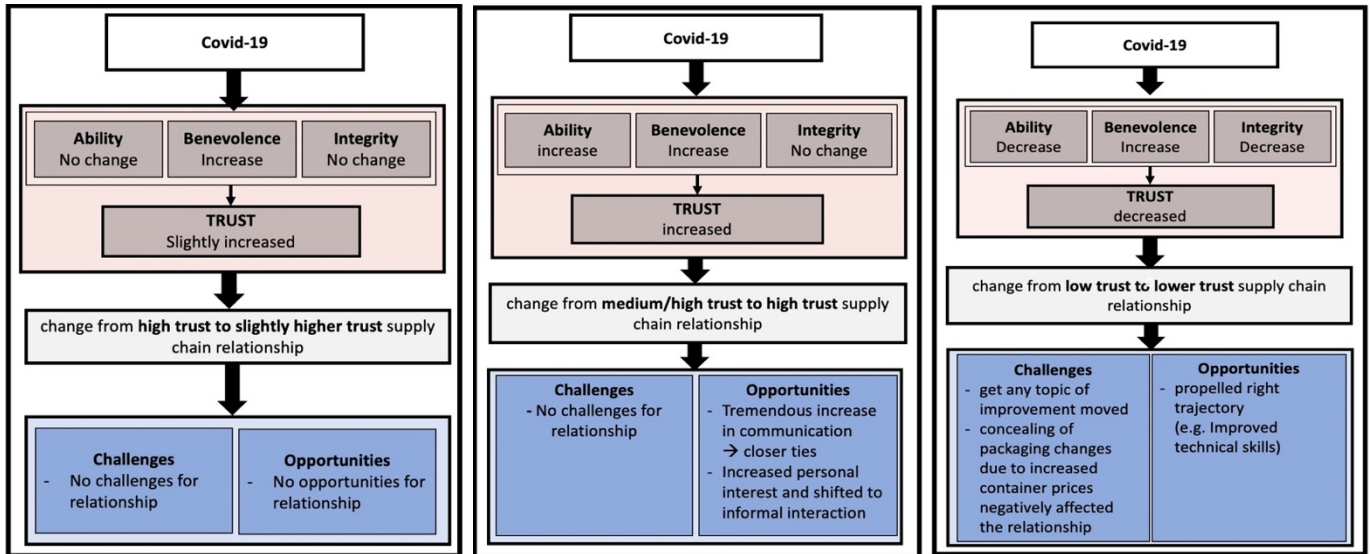


Figure 2. overview of results in research model, from left to right C3, C1, C2

increased knowledge. Increased knowledge was given through the increased exchange of information which led to improved understanding of each other's processes. Also, through shared experiences both parties learned more about SC challenges and possible solutions. Such as S1 stated, *"Corona has, of course, contributed to our strong growth, which in turn has led to other challenges."* Furthermore, these challenges increased knowledge about better understanding about each other's processes, *"[...] the importance of delivery time messages or the need to adjust deadlines when delays occur somewhere in the process flow"*, A1. On the contrary, in case 2 which had an initially low trust relationship, the buying company complained about a decrease in ability of the supplying company because Covid caused disruptions in supply chains resulting in volatile lead-times which makes it much more difficult to communicate and meet delivery dates. Also, the lack of technical ability created challenges to manage the overload of increased incoming orders and resulted in decreased ability to deliver on time. Lastly, it can be concluded that the highest trust relationship (C3) did not encounter a change in ability. *"New topics had to be taken into account, i.e. the price increase for container freight on lockdown, how do you react to lockdown, [...]"* because of the excellent relationship, these issues could be tackled jointly and were not a concern after the beginning of the pandemic.

The results of the development of benevolence demonstrate mutual change. All three cases indicated an increase in benevolence and similar patterns. The exchange between the two companies increased due to more problems which needed to be resolved. Increased contract leads to closer ties and eventually switching from formal "Sie" to informal "du", such as C1. This becomes clear after S1 stated that *"the interchange has gotten even more personal thanks to video telephony, you do not only chat to each other on the phone, [...] but you have a video, which provides a more trusting environment."* More feelings and frustration have been shared due to Covid and the challenges C2 faced. Moreover, health-related topics occurred, and other interpersonal interaction got emphasized (C3). Concerns in decision making were shared, such as *"how to accommodate the supplier so that even this day-to-day business of before the pandemic continues"*. This is another component that enhances benevolence since those concerns did not exist before Covid. The need for sharing feelings and thoughts

increased due to the cut of social interaction worldwide was also highlighted in C3.

With regards to integrity C1 and C2 showed similarities while C3 differed. Both relationships in C1 and C2 experienced honesty and respectful interaction, which was already before Covid at its maximum level and impossible to improve. This is supported by the statement of S3 *"[...] identical for me, because we already had very good relations before and that during and after the pandemic "*. In C2 a decrease in honesty could be observed due to increasingly using Covid as an excuse and not openly discussing their own challenges. This generally decreased the integrity of C2.

#### 4.2.2 Differences and similarities of challenges & opportunities due to Covid

Concerning challenges and opportunities on the SCR, patterns could be drawn from the multiple-case study. It was researched what impact different trust levels have on challenges and opportunities for the relationships. All cases had the same SC issues, such as supply delays, price increases, or material scarcity. However, the low trust relationship handled these difficulties differently from the higher trust connection. C2 did not tackle the SC disturbances jointly, which led to greater issues in the relationship. Nonetheless, the relationship also captured opportunity for better technical skills and an awareness of the need of working as a team. Increased trust relationships were not impacted of challenges since they maintained an open and honest communication and worked together to solve SC concerns. Furthermore, more frequent, and personal communication assisted in overcoming problems in their relationship, as C1 experienced. The slightly increased trust relationship (C3) did not build on possibilities because they already had an exemplary relationship.

Similarities can be explored when focusing on challenges in the SCRs due to Covid. The increasing relationships did not experience challenges on the relation during Covid. Due to SC problems, it was inevitable for C1 to schedule increased meetings and discuss issues which helped to tackle problems together. When increased exchange does not happen parties start making assumptions which results in room for error. This faced the decreasing trust relationship in C2. Their challenge was to get any improvement projects to proceed. Participants



were constantly trying to solve the new challenges in the supply chain caused by Covid. This occurrence leaves less time for improving other projects or accomplishing goals between buying and supplying firms from before the pandemic. Another challenge occurred due to the concealing of packaging changes which influenced sales of the other party. Covid caused rising container prices, which the supplying firm wanted to minimize by changing packages. However, these changes were not communicated, resulting in decreased sales for the buying firm. Since only C2 experienced challenges like this, it can be concluded that relationships with a low level of trust deal increasingly with challenges compared to increasing trust relationships.

Covid also created opportunities for SCRs. The greater changing trust relationship, which is increasing trust relationship (1) and decreasing trust relationship (2) stated a positive influence of Covid. Similarities in opportunities could be analyzed, such as a tremendous increase in communication, which also positively affects trust and creates closer ties, in all cases. Greater changing trust relationships experienced opportunities that (1) Covid propelled technical trajectory. C2 said that Covid propelled improving technical skills since *“we might have been at this point in two years what we are right now.”*. *“[...]And they are more willing to work with us”* since facing less willingness to work together before the pandemic. However, Covid, which causes a tremendous increase in sales and more orders, resulted in the buying firm being an increasingly important customer for the supplying firm. This event motivated both parties to act toward each other, work together and jointly solve challenging situations.

## 5. DISCUSSION

Previous research on trust found that higher performance is correlated with higher trust levels (Botwe et al., 2016) and enhanced performance (Johnston et al., 2004). Multiple studies researched the effect of Covid and its changes (Ikram et al., 2021). Others studied the effect of disruption on trust (Arslan et al., 2022; Gustafsson et al., 2020) and even the effect of Covid on trust (Kye & Hwang, 2020). However, researching the effect of Covid on trust relationship between buying and supplying firm remained unclear. This study addresses that gap by examining multiple cases with low, medium/high, and high SCR. The effect of Covid on low-, medium/high- and high trust between the buyer, account manager and supplier were researched based on the dimension's ability, benevolence, integrity, which is the trust concept of Mayer et al (Mayer et al., 1995). Besides that, the influence of different trust levels on the occurrence of challenges, and opportunities were analyzed. This study answered the research question: *“What is the effect of Covid on different trust levels among supply chain relationships?”*.

Key findings of the investigation are that Covid had a significant influence on trust levels which impacted challenges and opportunities in the relationship. SCRs experience varying trust levels. Covid acted as an amplifier for all three relationships. It influenced the low trust relationship with a decline in trust, which caused significant challenges but also opportunities. Because of the pandemic, the medium/high trust relationship improved its trust, the high trust relationship resulted in a modest rise in trust. And the low trust relationships suffered the most due to a decrease in trust and multiple challenges associated with low trust. High trust SCR did not get disrupted significantly.

### 5.1 Effect of Covid on trust antecedents

The research model presents an effect of covid on the trust antecedents which influences trust. Trust eventually has an impact on challenges and opportunities. The challenges and opportunities will be discussed in the next subchapter. This study shows that covid affected the trust antecedents (ability, benevolence, and integrity) differently depending on the initial trust level. In all three examples, ability differed more than benevolence and integrity. Increasing ability was analyzed in C1, which had an initial medium/high trust level. A decrease of ability showed C2. Unreliability, inability to address difficulties, and lack of organization and technical expertise produce decreased ability. C2's ability was before Covid already low. And no change was explored in C3 due to balanced ability. Meaning information interchange increased, but uncertainty about how to react to price increases and lockdowns hampered understanding. The findings show that Covid thus has effect on ability. The effect of covid on ability differs depending on the level of trust between buying and supplying firm. Studies on benevolence show an increase in all three cases. In all three cases, contact increased during the outbreak. Increased interaction led to closer relationships and a transition from "Sie" to "du" (C1). Covid and the challenging conditions prompted further ideas and new approaches (C2). Health issues and more were discussed (C3). Due to lockdowns, there was a higher need to connect with business partners. This shows that Covid increased benevolence, however the effect does not depend on a different trust level. Covid affected integrity the least on the three relationships. C1 and 3 were honest and respectful initially, requiring less improvements on processes, therefore no changes occurred for these cases. Only C2's respect remained but dishonesty decreased S2's integrity. This shows covid had a negative influence on integrity of low trust relationship but no effect on medium and high trust SCRs.

### 5.2 Influence of trust levels on challenges & opportunities

The influence of changing trust levels in SCR and the impact of challenges and opportunities due to the pandemic were analyzed. The findings reveal that the decreasing trust relationship suffered from challenges the most because they did not tackle the SC problems jointly, which lead to greater challenges in the relationship. For the other cases with increasing trust relationship challenges did not negatively impact their relationship. It can be said that Covid caused challenges on the decreasing SCR.

On the contrary, this research shows opportunities for trust relationships. Increased contact enabled closer ties between buying and supplying firm—personal interaction increases, such as sharing personal topics. Closer ties positively improved the SCR which supports Kyu Kim et al. (Kyu Kim et al., 2011). Moreover, the study found that Covid speeded up technical adjustments due to the increased need for change. This leads to the statement that decreased trust relationship encountered the most challenges within the SCR through the disruptions but also captured opportunities. Higher trust relations showed more resilience against challenges and solely gained improvement opportunities, which reveals that covid positively influences the occurrence of opportunities regardless of the level of trust.

### 5.3 Theoretical implications

The findings of this study contribute in numerous ways. It is shown by applying the concept of trust to multiple cases, that Covid affects trust. The changing trust level have an impact on challenges and opportunities on SCRs. This study advances the

understanding of the effect of Covid on trust in SCRs. And has implications for the literature on trust development and its impact on challenges and opportunities. This research supports that Covid operates as an amplifier for trust relationships. This amplifier either increases trust with initial higher trust or decreases trust with initial lower trust. This supports findings in academic literature, showing that Covid intensifies existing relationships (Ikram et al., 2021; Ojajärvi, 2022). Previous studies show the need for increased trust in risky situations (Coleman, 1994; Mayer et al., 1995). The investigation of the three SCRs yielded the same results, supporting existing research. A lower trust relationship led to a decrease in trust and further challenges due to Covid. Moreover, partly consistent with the study of Sørensen et al. (2011), Covid jeopardizes the opportunity to reach goals. Academic literature examined an increase and decrease in trust during disruptions (Kye & Hwang, 2020) which is supported in this study. On the other hand, the findings contradict the academic literature (Arslan et al., 2022; Gustafsson et al., 2020), which excluded the possibility of increasing trust during disruptions. Talking about increasing trust, this study underlines previous researchers who identified increased potential, performance and reduced relational conflicts (Johnston et al., 2004; Zaheer et al., 1998), as the investigation of the increased trust relationships yielded opportunities and no additional challenges. No changes in trust development could be identified in this study for already high-existing trust relationships (Ojajärvi, 2022). This is closely in line with the findings.

Further contributions are that this study validates that lower trust relationship decrease in trust and deal with further challenges due to Covid, which strengthens the study of Arslan et al. (Arslan et al., 2022). Furthermore, the findings unravel specific opportunities of Covid between buying and supplying firms that enhance buyer-supplier relationships. Firstly, this study suggests that video conferencing enhances benevolence and thus trust between buyers and suppliers when facing disruption, which adds to further research (Grzech & Tisalema Shaca, 2022). However, this study contradicts other researchers who argue that virtual communication hinders trust development (Arslan et al., 2022). Specifically, this study shows the contrary: increased video conferences boost personal interaction such as Nguyen & Canny show in their study (Nguyen & Canny, 2007).

## 5.4 Managerial implications

In addition to theoretical implications, this study provides new details of potential improvement during disruption and how to facilitate SCRs. This study contributes to building SC resilience. The study shows to be resilient in overcoming disruptions and mitigating its problems, a high trust relationship between buying firm and supplying firm is crucial (Gustafsson et al., 2020). The research showed that high trust relationship only improved or remained unchanged in trust and exclusively saw and build on opportunities resulting from Covid. Thus, medium – high trust prepares relationships for a negative effect of disruptions like Covid.

This study concludes that managers should emphasize on jointly working together to enhance SCRs. The SCRs examined reflect increased levels of trust in cases of initial medium-higher trust. Although one of the cases experienced decreased trust, the communication patterns between buyers and suppliers indicate that trust can develop as relationships become more interpersonal and change to a more personal level. As stated above the study implies that companies need to invest in strong

and trusting relationships within the supply chain. This enables companies to be better prepared to overcome disruptions or even capture opportunities. After sharing the results of the study, the responsible manager indicated to further invest in relationship building between the buying company and its core suppliers to be better suited for further disruptions and the respective challenges and opportunities.

## 5.5 Limitations & future research

Although this study provides valuable insights into the effect of Covid on trust in the context of SCRs, there are some limitations. The first limitation is that due to the small sample size of eight participants, the results of this case study cannot be generalized (M. S. Rahman, 2016); thus, caution is advised when interpreting these results. Specifically, in this research, five individuals from firm X and three from different firms with their relations to firm X were interviewed. Each relationship is responsible for different furniture categories. In addition, just one representative from each supplier was interviewed. The results apply to these interviewees but may not apply to all employees of each organization.

Moreover, even though the buyers were thought to be speaking truthfully, they may believe that their supervisor had access to the data and, as a result, they may have only reported positive conduct. In addition, the study's validity is reduced, and there are two limitations concerning the suppliers. The suppliers may think that the buyer has access to the data, which may cause them, consciously or unconsciously, only to speak positively and record desirable behaviors. Despite this, each participant was notified of the anonymization procedures taken and their data being protected under the GDPR. Consequently, the risk has been minimized.

Additionally, this study lays the foundation for future research. First, the findings do not demonstrate the different phases of Covid since this study only focuses on the first year of the pandemic. As a result, future studies should consider the time stages of Covid and possibly after Covid. Firstly, it would be of particular interest to expand on the current study's findings using a different trust concept. The trust concept of Mayer et al. is limited. Other researchers proposed a trust model of SCRs, including characteristic-, rational- and institutional trust (Laequddin et al., 2012). In addition, there are always language ambiguities (Ochieng, 2009), which causes the interviewer to misinterpret the interviewee's responses. Additionally, the results must be interpreted as subjective assumptions, and self-report bias may be present due to the research methodology. Additional large-scale quantitative research should be conducted. To increase the diversity of this study, it should include numerous purchasing and supplying companies from various industries, countries, and sizes. Also, companies that suffered from decreased product orders should be considered to determine the mediating effect can be supported or whether other correlations or moderating effects are present.

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## 8. APPENDICES

### Appendix A – Literature review – Research Model

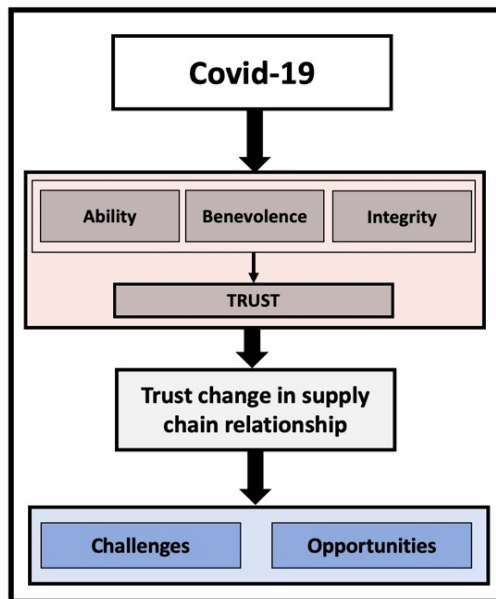


Figure 1. Research model

### Appendix B – Methodology – Case selection

Table 1. Case selection

Case	Function	Interviewee	Interview duration	language	Trust level before to during Covid	Relationship length	Industry	Country of import	Turnover rating
1	Account manager (buyers' firm)	A1	15:02	German	Middle (high)→high	8 years	Furniture (bedroom)	German	highest turnover
	Buyer	B1	36:44	German					
	Supplier	S1	17:19	German					
2	Account manager (buyers' firm)	A2	21:50	English	Low→lower	7 years	Furniture (kitchen)	Asia via Spain	Middle turnover
	Buyer	B2	23:41	German					
	Supplier	B3	18:21	German					
3	Account manager (buyers' firm)	A3	34:21	German	High→slightly higher	8 years	Furniture (upholstery, armchairs)	China	Lowest turnover
	Supplier	S3	19:32	German					



## Appendix C – Methodology – Excerpt interview protocol

*Table 2. Excerpt interview protocol*

Topic	Question	Purpose	Construct
Ability	Was the other party capable of performing its job before covid, and is there a change now (Mayer et al., 1995)	Measuring trust using trust concept of Mayer et al. (Mayer et al., 1995)	Trust level before and during covid
Benevolence	Could you share your ideas, feelings and hopes with the other party before the pandemic, can you do so during covid (Mayer & Davis, 1999)?		
Integrity	Was the other party always honest and truthful before the pandemic, and in comparison, to nowadays (Robinson, 1996)?		
Change	Can you also see a positive change in your relationship due to covid which are related to trust?	Understand the change in SC relationship regarding trust	Change due to covid (challenges and opportunities)

## Appendix D – Methodology – Interview protocol

*Table 2.1. Interview protocol*

Topic	Purpose	Construct	Question
Ability	Measure the trust level before and after covid based on trust concept of Mayer et al (Mayer et al., 1995)	Trust level before covid and during covid	1) Do you feel that the other party had a lot of knowledge about the topics you discuss before Covid and how is that currently?
			2) Was the other party capable of performing its job before covid, and is there a change now (Mayer & Davis, 1999) ?
Benevolence	Measure the trust level before and after covid based on trust concept of Mayer et al (Mayer et al., 1995)	Trust level before and during covid	3) Could you share your ideas, feelings and hopes with the other party before the pandemic, can you do so during covid (Mayer & Davis, 1999)?
			4) Was the other party showing care and concerns in important decision you took together, and how would you describe it now?
Integrity	Measure the trust level before and after covid based on trust concept of Mayer et al (Mayer et al., 1995)	Trust level before and during covid	5) Was the other party always honest and truthful before the pandemic, and in comparison, to nowadays (Robinson, 1996)?
			6) Before Covid, how would you describe the respectful interaction between you and the other party, do you notice any change today?
Change	To understand the change in SC relationship. Exclude false assumptions when asking for a second variable which could have caused change	Change due to covid	7) Did you observe any change in the relationship during COVID related to trust? (how? why not?)
			8) Are there difficulties with which you must deal now, which were no difficulties before covid? Did these changes also relate to the trust in the relationship?
			9) Can you also see a positive change in your relationship due to covid which are related to trust?
		Change due to second variable	10) Were there other events or things besides covid which caused any changes in your relationship?

## Appendix D – Results – Excerpt of Excel spreadsheet based on trust and change

*Table 3. Excerpt of Excel spreadsheet based on trust.*

Case	Trust antecedent development		Quote
C2; A2	Ability	decrease	<i>“They were not ready from a technical part of view to separate those stock to their actual warehouse, so they were selling us product which theoretically were in stock but they weren't [...]”</i>
C2; B2	benevolence	increase	<i>“Before they were less willing to work with us and adapt, during we grew a lot, and in this case, we became more important as a customer and then more willing to come towards and fulfill the need we have as a customer.”</i>
C2; A2	integrity	decrease	<i>“[...]before covid they did not have the excuse and now I think they use it now more than needed. General 70% was cause by covid and 30% of delay were cause by bad planning and they said 100% cause by covid.”</i>

*Table 4. Excerpt of Excel spreadsheet based on change*

Case	Change	Quote
C1; A1	opportunity	<i>“Perhaps some are also less shy about simply picking up the phone and asking for help. And yes, that has definitely developed positively for me, the whole collaboration.”</i>
C2; A2	challenge	<i>“[...]hectic, difficult to get any topic of improvement moved. That was the main issue that was sort of standby in terms of improvements of process and so on because everyone was busy trying to turn of the fire, delays, getting order out and so on.”</i>
C3; S3	no change	<i>“[...] identical for me, because we already had very good contact before and that got better rather than worse during and after the pandemic. But was always top.”</i>

## Appendix E – Trust development based on ability, benevolence, and integrity

*Table 5. Detailed overview of changing antecedents of trust due to Covid*

C	Ability		Benevolence		Integrity		Trust
1	<b>Increase</b>	3) supplying firm was one of the only ones with continuing ability to supply	<b>increase</b>	3) an increased sharing of feelings, visions and hopes with the supplying firm.	<b>no change</b>	2) smart casual and declared high respect towards each other throughout	<b>increase</b>
		4) increased knowledge of S1 (significance of delivery times, adaption of deadlines and delays)		4) increased interpersonal interaction (switching from “Sie” to “du”)			
2	<b>decrease</b>	4) unreliable: S1 did not meet agreements which were previously confirmed	<b>increase</b>	2) Increased sharing of feelings, visions and especially frustration	<b>decrease</b>	2) using Covid as an excuse for shipping delays	<b>decrease</b>
		5) difficulties handing increased orders due to lack of technical skills					
		6) S2 did not act on delays or other problems as desired by the buying company.					
3	<b>no change</b>	3) lack of knowledge of S3 about topics such as rising container prices, lockdown, shipping dates	<b>increase</b>	2) naturally increased a closer more open conversation and sharing of feelings due to rising problems	<b>no change</b>	2) neither A3 nor S3 observed changes due to an always close tie relationship with no concerns	<b>Minor increase</b>
		4) knowledge of buying firm increased during Covid and new topics were discussed					

## Appendix F – Results – Cross-case patterns

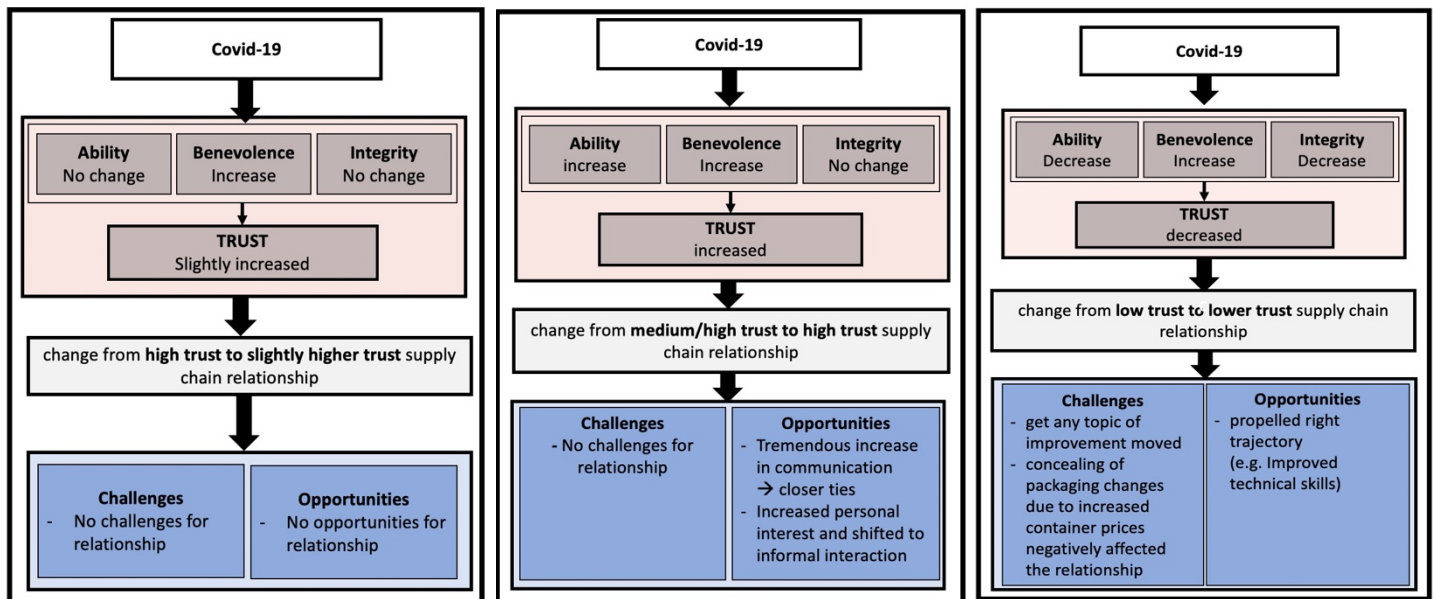


Figure 2. overview of results in research model

## Appendix G: Organizations & Interviews

### Table 6: Overview Participating Companies

Left out due to confidentiality.

### Table 7: Overview Interviews

Left out due to confidentiality.

### Interviewees and their Organizations

Left out due to confidentiality