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# COVID19 and its impact on procurement processes of organisations in the private and public sector within the Twente region

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## Abstract

COVID19 has had a major impact on our society and economies. The crisis this pandemic has created led to the fact that many industries and economies came to a standstill due to many factors. Therefore, this paper is taking a deeper view into how this crisis is impacting organisations in the way how they are active in procurement, with public and private organisations in the Twente region as focus group. In other words, the research seeks to how purchasing processes are affected and how they will change in the near future. First of all what could be seen was that this crisis came with many risks and negative side effects, both internally as externally.

After a literature review, qualitative research was done in the form of expert interviews to gather as much as valuable data. Data is gathered from 26 public and private organisations within the Twente region

Internally it could be seen that output was decreasing. Next to that there was much internal uncertainty about how to cope with the crisis which has led to the fact that organisations created crises teams and communication became very important. Externally organisations saw supply insecurities and scarcities due to the supply chains drying up further up the stream. This has led to the fact that communication with suppliers became very important. Also many organisations, were buffering stock. Next to that, multiple sourcing and looking for alternatives got very much attention. Also, becoming a preferred customer is becoming increasingly important. What also could be seen was that demands were declining, leading to decreasing turnover. Therefore, organisations are suspending non-critical investments and projects, next to skimming off personnel. Finally, organisations who source their supplies remotely, got in contact with very high transportation costs and times.

When comparing public and private companies, it could be seen that there was no specific difference in how they are both affected by the crisis. However, public organisations are less likely to have a preferred customer status. Next to that, risk management can be seen as a good way in order to hedge for risks as the organisations who had a risk management model in place coped well overall. Finally, organisations who source remotely saw more problems compared to the organisations who source their products locally.

First of all, this research has practical implications as it summarizes how COVID19 affects procurement and what organisations can do in terms of strategy in order to cope with the negative effects. Next to that, it provides a future outlook on how procurement has to and will change. The strategies proposed are 1) communicating 2) buffering stock 3) multiple sourcing 4) increasing supply chain visibility 5) suspending non-critical investments and 6) risk management. These strategies turned out to help the studied organisations and this can also be used by other organisations in their combat against COVID19.

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**List of abbreviations**

<b>Acronym</b>	<b>Definition</b>
SC	Supply Chain

# 1 Introduction

## 1.1 Background situation: COVID19 has a devastating effect on societies and economies leading to the fact that many organisations suffered from the crisis it created

To date, the Corona virus is still gripping our society and economies. The crisis this pandemic has created led to the fact that many industries and economies came to a standstill due to many factors. According to Morens, Folkers and Fauci (2009) a pandemic can be seen as an epidemic “distributed or occurring widely throughout a region, country, continent or globally” (p. 1018). For instance, companies working with each other all over the world encountered many supply chain interruptions; ships or cargo flights cannot go in or out due to the lockdown. But also, many companies are losing sales due to the declining demand for their products and capital to make investments. These factors has made this pandemic to create a serious economic crisis. Therefore, many companies have to adjust their strategies, and those with their suppliers especially as over 60% of companies’ turnover is spend on procurement. When comparing the Corona virus to other pandemics, it has a bigger impact on economies. This is due to the fact of the strict public health measures which have caused the economic activities of companies and citizens to be disrupted. Because of the partial or total lockdowns implemented in many parts of the world, the capability of suppliers to devote their raw materials or products is being jeopardized (Donthu & Gustafsson, 2020). Therefore, companies have to take a deeper look into their supply chains and especially their relationships with their buyers and which strategies to apply to keep running as usual.

First of all, the aim of this paper is to find out what a pandemic really holds. What is it? What are the risks? And how can companies cope with such crises? In many literature, is spoken about how to cope with a pandemic, however this is more based on research & development with regard to the disease and how to protect humankind. For instance in a paper by Osterholm (2005) several steps are summarized in order how to cope with and prepare for such pandemics, however, little is told about how businesses can fight a pandemic. Also, not much is published about the specific risks COVID19 brings for organisations and how they should cope with that. Therefore, this paper tries to identify which strategies exist in coping with a pandemic like this, especially for businesses. So it starts with exploring what risks a pandemic like COVID19 brings for businesses, how companies can cope with it with proper strategies and how they can learn from it and especially learn from each other if such a pandemic will reoccur. As there is a difference between the sector organisations are active in, i.e. if they are public or private organisations, also the way they are affected can be different. Therefore it is important in this research that will be identified if there is a difference in how organisations are affected and how they cope based on the sector they are active in; the public and private sector. In order to cope with a pandemic organisations can make use of different risk management strategies. One of these current models especially for COVID19 is the model by Schiele, Hoffman and Körber (2020) about synchronicity management. The synchronicity management model can be seen as a risk mitigation strategy which can help companies cope with COVID19. The model holds four different factors and propositions for companies to use. These factors have to do with the environmental, financial, operative and strategic components of the model. Therefore this model is being reviewed in order to give, in a later stage of the paper, a new dimension or conclusion if this model also holds for the companies analysed in this research. So in essence,



afterwards, when the research companies are analysed, a conclusion can be drawn if this synchronicity management model is useful and if there can be another dimension added to it. So in short, this paper tries to identify how different companies have reacted to COVID19 with regard to their buying strategies and contacts with suppliers and compare this to the theoretical assumptions made in the beginning of the paper. In most literature and other studies, many larger multi-nationals are being reviewed in terms of how they are affected by and reacted to COVID19. However, this research is aiming to keep it more narrow and actually focus on local companies instead of these larger multi-nationals. In doing so, 30 public and private companies in the Twente region are being interviewed to get to know more on how they coped with COVID-19.

So all in all, the aim of this research is to find out how purchasing processes and strategies of companies in the Twente region have been changed or are going to change due to COVID19. Also, to find out how the organisations are affected and what they did in terms of strategies compared to the synchronicity model (Schiele et al., 2020) and what the difference is between private and public organisations. And finally how other companies can learn from it. As already stated in the introduction, COVID19 has led many companies to suffer from declining sales and jeopardized supplies. Therefore, many companies had to adjust their purchasing strategies or just exercise business as usual. When it is clear how the organisations are affected and what they did in order to cope, this is then being compared to the synchronicity model by Schiele et al. (2020). I.e. the risks and strategies are classified into the strategic, environmental, operational and financial aspects. The aim is thus to find out how all these companies reacted to COVID19 with regard to their purchasing processes and look if there is any difference or correspondence between the companies. This difference can then be scaled into different factors and whether these factors have an influence on how they are affected by COVID19; the difference if the company has a risk management in place, if they are a public or private organisation, if they are a preferred customer or not, etc.. Finally, this is done with organisations located in the Twente region to keep it more local as also already mentioned above. Therefore, the main research questions is:

**“How are the procurement processes and strategies of public and private organisations in the Twente region affected and changed due to COVID19?”**

In order to structure the research and try to come to an answer to the main research question stated above, several sub-questions are formulated:

- How are companies in the Twente region affected by COVID19?
- What strategies did the companies pursue to cope with COVID19?
- How is procurement going to change after COVID19?

**1.2 Academic contribution: this research brings new dimensions into place regarding how organisations can cope with COVID19, as this is not yet extensively researched**

The goal of this research is to find out how purchasing processes are affected by COVID19 and how organisations tend to cope with such a crisis. In doing so, several factors, as aforementioned, are being analysed and taken into account. There is some literature about how procurement is changing during COVID19, however, it is not that extensive and not much is written about industrial procurement. Next to that, this research brings new dimensions into place when looking at these factors and connecting it to COVID19, as this

is not yet being researched. All in all, it can be already stated that this research might have an academic contribution. Moreover, in this research, the synchronicity model (Schiele et al., 2020) is being reviewed and compared to the research organisations after which a new conclusion can be made or a new dimension can be added. Therefore, it would also have some academic contribution to that paper. After the research, also several ‘best practices’ are being reviewed. The companies that had a well-set strategy in place and therefore came through the crisis unharmed can be seen as good examples for other organisations in times of crises. In this sense other companies can learn from these examples which can also be seen as an academic contribution.

First of all, the paper will start by a literature review which covers several topics. Public procurement and remote sourcing are being reviewed as these are characteristics of the studied organisations that needed deeper explanation. Furthermore risk and risk management is being reviewed in the sense to give more meaning to what risks come with COVID19 and what organisations can do. After that the propositions and methodology are being introduced, after which the results will be discussed and finally a conclusion and discussion will be done. In the end, a short future outlook will be given about how procurement will change.

### **1.3 Practical contribution: the goal of the research is to find out how procurement will change due to COVID19 and which strategies are successful in order to cope with the help of practical examples**

The overall goal of this research is to get to know how organisations are affected by COVID19, especially the effects on procurement. As procurement is an essential part of a company’s turnover, it is very important that the negative effects of COVID19 are being taken into account. Therefore, this paper can have a practical contribution as it tries to accurately map those negative side effects. Furthermore, this paper tries to look into the process of procurement in times of COVID19. So, in other words how procurement processes are changing. In terms of strategy, this paper also tries to provide new insides by comparing what all the different organisations did in order to cope with the negative effects. Additionally, the paper summarizes different risk management strategies that can be helpful for companies in coping with the crisis. In the end, a clear overview will be given how these specific organisations are affected and how they successfully coped in terms of best practices. All in all, this can be very helpful as other organisations can learn from it and change their procurement processes accordingly so that the negative effects are restricted as much as possible. After that, the paper comes up with several recommendations how procurement should be organised in times of these crises. Therefore, to conclude, this research has definitely a practical contribution as other organisations can learn from the practical examples provided in the paper.

## **2 Literature review**

### **2.1 An outline of the literature review**

In the coming part of the paper, a theoretical framework is built in order to frame the research and the paper around it accordingly. First of all, as there is a difference between the studied organisations, there will be given a look into what the difference is between public and private organisations. Furthermore, these organisations also on the other hand source their

products local or remotely, which will also be reviewed in the literature review. After it is clear what the difference is between public and private organisations and remote sourcing, a more in-depth research is done into what risks specifically are and what companies can do in order to hedge against all different types of risks in terms of risk management. After risk and risk management is introduced and explained two major phenomena are explained; a pandemic in general and COVID19 in specific. So first of all what a pandemic basically is and what risks it brings. Then secondly, COVID19 is further introduced and explained to give an overview of what COVID19 actually is, what risks and consequences it brings and what measures are taken. After these two phenomena are clear, a section is further explaining what companies actually can do against all these risks in terms of risk management. So there will be different strategies summarized; when these strategies are clear, different risk management models will be tested after which the best one will be chosen to be further investigated and used during the research. Afterwards, a conclusion is given in which is stated what the relevance of the theory is for this research.

## 2.2 Public and private organisations both engage in procurement, however, there is a clear difference in the way they do it

As the studied organisations in this research are divided into public and private organisations, it may be useful to first summarize the difference in procurement in the public and private sector. Both public and private organisations employ in procurement for similar goods and services. However, there is a major difference in how both parties do that. Therefore, this part of the paper will tell more about the difference in how public and private organisations source their supplies.

This part of the paper first starts by introducing public procurement as this is maybe less known than the ‘standard’ private procurement. According to Lynch (2013) the goal of public procurement is “award timely and cost-effective contracts to qualified contractors, suppliers and service providers for the provision of goods, work and services to support government and public services operations, in accordance with principles and procedures established in the public procurement rules” (p. 2). So, what is the difference between the public and private sector? As stated above, both parties are designed to buy goods and services. However, the main difference is in the purpose of buying; one is focused primarily on a social benefit, the other is about profit (Lynch, 2013, p. 3). There are two main reasons why public organisations engage in procurement: supporting governmental operations and providing public services. Furthermore, in the public sector, regulations are way more used which puts constraints on contracts and award mechanisms. In the private sector, these constraints are absent. So in public organisations encounter way more regulations that are not used in the private sector. This is done in order to prevent corruption and has led to the fact that public organisations have more bureaucracy and formalization. Furthermore they make use of award mechanisms which creates more transparency which also makes it easier to prevent this corruption. The so called tendering processes makes it also more difficult for public organisations. According to Amann and Essig (2015, p. 289), as stated in Praas (2016) the public procurement regulations which has led to the fact that public organisation have to use tendering procedures, are causing complex processes and makes the process time consuming. Therefore, these procedures make it very difficult for buyer and supplier to build a good relationship and maybe becoming a preferred customer.

Public procurement is also built upon different basic principles which are

transparency, integrity, economy, openness, fairness, competition, accountability. First of all, transparency speaks for itself. It is important that the public procurement processes are transparent, therefore these organisations have to bring out information to all stakeholders. The next one, integrity, so that everyone can rely on the information that the public organisations is providing. Economy is about “the need to manage public funds with care and due diligence so that prices paid for goods, services and works are acceptable and represent good value for the public funds expended on them” (Lynch, 2013, p. 12). Openness connects to the previous ones, as information should always be open to all stakeholders. The next one is also a bit the same as the previous and is about fairness. As this can be defined in many different ways in public procurement it will not be further explained. And finally accountability is that everyone involved in the public procurement process is accountable.

**Table 1.** Differences public and private procurement

	<b>Public sector</b>	<b>Private sector</b>
Purpose of buying	Social benefit	Profit
Regulation	Constraints	No/less constraints
Process of buying	Tendering process	Building long-term relationships
Complexity	High	Lower

### 2.3 Sourcing products and services remotely might have several benefits, however, these benefits also have a flip side

Next to the fact that the studied organisations are on the one side private or public, there can also a difference be seen in the way they purchase their products. In other words, some organisations source their products locally (within Europe) and others remotely (outside Europe). Therefore this part of the paper will tell more about what remote and local sourcing is, what the benefits are and what the downsides are and comparing those two.

According to Chopra and Meindl (2007) sourcing can be seen as “the set of business processes required to purchase goods and services” (p.58). So, remote sourcing is thus the process of purchasing goods and services remotely or globally, as in most literature it is called global sourcing. Therefore, in this part both remote and global sourcing are used in the same way. Trent and Monczka (2005) distinguish two types of sourcing; international purchasing and global sourcing. As much literature propose they are the same, Trent and Monczka (2005) see them differently:

“International purchasing involves a commercial transaction between a buyer and a supplier located in different countries. Global sourcing, on the other hand, involves integrating and coordinating common items, materials, processes, technologies, designs and suppliers across worldwide buying, design and operating locations” (p. 24).

However, this holds true, it might extend the scope of the interview to view them as two separate phenomena, therefore, this paper also uses them the same. So, in other words, global sourcing, remote sourcing, international purchasing can all be seen as the same. In this research, organisations who source their products remotely, are sourcing it from suppliers outside of Europe. In a paper by Mol, Van Tulder and Beije (2002) global sourcing “involves setting up production operations in different countries to serve various markets, or buying and assembling components, parts or finished products world-wide” (Murray, Wildt and

Kotabe, 1995b). According to Hefler (1981) global sourcing can be seen as “the more efficient use of worldwide human, material, energy and capital resources” (p.7). On the other side of remote sourcing, there is local sourcing and according to Körber and Schiele (2020) local sourcing is involved in purchasing commodities and resources in immediate geographical proximity. Sourcing products and services locally can have several benefits; similar standards, culture, currency but also short distances. According to Ivanov et al. (2018) local sourcing is less sensitive for supply chain disruptions. So this already imposes the benefits of sourcing locally, therefore, the coming part of the paper will dig deeper into the benefits of remote sourcing. After that also the downsides of remote sourcing will be summarized.

According to Holweg, Reichhart and Hong (2011) there are several reasons why organisations choose to source their supplies remotely. First of all, the primary factor is the reduction in the purchase price of the goods (Monczka and Giunipero, 1984; Monczka and Trent, 1991; Cho and Kang, 2001; Nassimbeni, 2006, as stated in Holweg et al., 2011). But organisations do not only source remotely due to costs, but also to form partnerships “to obtain access to new technologies or higher quality products, or to establish a foothold in new markets” (Holweg et al., 2011, p. 334). According to Nassimbeni (2006) as stated in Holweg et al. (2011) there are three main reasons of sourcing remotely: “(1) gaining access to cheaper resources and the intensification of international competition; (2) establishing a presence in new markets; and (3) obtaining access to distinctive resources.” (p. 334). In Appendix A all the benefits of remote sourcing can be seen.

So as it can be seen, remote sourcing can have many benefits, however, there are also some negative aspects which will now be discussed. In their paper Cho and Kang (2000) review the challenges and risks of global sourcing. The first challenge or risk is related to international logistics as they cover longer distances than domestic logistics. This longer distance leads to longer lead times, requiring more inventories leading to the fact that there is a higher sensitivity of things going wrong. Also transportation systems might be very different in other countries than the domestic with regard to reliability and unexpected delays. Another challenge might be cultural differences; according to Cho and Kang (2000) differences can cause “miscommunication and create further problems in supplier evaluation, contracting, product inspection and maintaining relationships in global sourcing” (p. 547). A final challenge are regulations as “several governments regulations influence global sourcing directly and indirectly and often make it complicated” (Cho & Kang, 2000, p. 548). So the above already imposes the challenges organisations face, and these challenges are only likely to become greater due to COVID19 which will be further investigated during this research.

## 2.4 Risk defined in general and how to manage: risk is a very broad concept and should therefore be narrowed down to be better understandable for companies which might help them to assess these risks

Before introducing a pandemic and COVID19 specifically and its risks, it is useful to define risk first because it is a very broad concept. Therefore this part of the paper tries to narrow this concept down to get a better view of what is meant with risk and what risks exist and for procurement in specific as that is what the research is somewhat about. Because some research companies had risk management in place and others not, it can be nice to compare

whether this has an influence on how they coped with COVID-19. Whether companies have a risk management in place can have an influence on how they are affected by the crisis or if they adapted well to it. Therefore this part also tells more about what risk management really is, how it can be used; different risk management strategies and how they can help coping with crises (risks).

According to Manuj and Mentzer (2008) global supply chains have a high risk due to the different links connecting a wide spectrum of companies. In turn, these links are sensitive for disruptions, breakdowns and natural disasters. Therefore, risk management might be a good way to try and mitigate these risks as much as possible. However, before talking about risk management, risk has to be defined. Risk can be seen as the expected outcome of an uncertain event; uncertain events lead to the existence of risks according to Manuj and Mentzer (2008). Next to that it is built upon two components; potential losses and the likelihood of those losses. Based upon that, the risk matrix can be used to assess the risk. Below the table can be seen where the consequences range from negligible to catastrophic and the likelihood from rare to almost certain. Where an almost certain likelihood and catastrophic consequence have the highest risk and negligible consequence and a rare likelihood have the lowest risk.

		Consequence				
		Negligible 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Likelihood	5 Almost certain	Moderate 5	High 10	Extreme 15	Extreme 20	Extreme 25
	4 Likely	Moderate 4	High 8	High 12	Extreme 16	Extreme 20
	3 Possible	Low 3	Moderate 6	High 9	High 12	Extreme 15
	2 Unlikely	Low 2	Moderate 4	Moderate 6	High 8	High 10
	1 Rare	Low 1	Low 2	Low 3	Moderate 4	Moderate 5

**Figure 1.** Risk matrix

Source: Kaya (2018)

Dionne (2013) defines five types of risks; pure risk, market risk, default risk, operational risk and liquidity risk. “Pure risk is a combination of the probability or frequency of an event and its consequences, which is usually negative” (Dionne, 2013, p. 13). The following, market risk, means the volatile prices or asset returns and credit risk can be seen as default risk. Operational risks are associated with negative outcomes in the daily operational processes which can be employee errors, fraud or IT systems breakdowns. And finally, liquidity risk can be seen as the “risk of not possessing sufficient funds to meet short-term financial obligations without affecting prices” (Dionne, 2013, p. 14). However, these risks are merely still a bit broad, as this research focuses on risks related to procurement. Therefore, now a deeper look is taken into the phenomenon of supply risk. According to Zsdisin (2003) supply risk can be seen as “the probability of an incident associated with

inbound supply from individual supplier failures or the supply market occurring, in which its outcomes result in the inability of the purchasing firm to meet customer demand or cause threats to customer life and safety” (p. 222). Hoffmann (2011) defines supply risk as: “the change of undesired events associated with the inbound supply of goods and/or services which have a detrimental effect on the purchasing firm and prevent it from meeting customers’ demand within anticipated cost and time” (p. 51). According to Hoffmann (2011) supply risk can be divided into two different sub-risks; environmental risks and supplier (relationship) risks. These supplier (relationship) risks can in turn be divided into; financial risks, operational risks and strategic risks as can be seen in the figure below.



**Figure 2.** Supply risk classification

Source: Hoffmann, 2011, p. 53

As it might go to deep for now to explain these different types of risks, this will be done in a later section in this paper. Zsidisin (2003) categorizes two more types of risk under supply risk: market and item risk. According to Zsidisin (2003, p. 18) market risk exists from four different categories: global sourcing, market capacity constraints, market price increase and the number of qualified suppliers. All these four categories come with certain risks and therefore need to be taken into account when measuring supply risk. For instance, global sourcing is growing very important, however, is has a price; currency fluctuations, long-term cost savings and natural disasters and transportation times. Next to market risk, there is item risk which can be divided into two categories: impact on profitability and nature of product application. Impact on profitability has to do with the fact when products are unavailable to purchase, companies can sell less which has in turn a negative impact on profitability. Finally nature of application has to do with new or existing products; as new products cause to have more risks than already existing products as less is known about new products. In the figure below an overview of the different risks can be seen.



**Figure 3.** Risk mapping

Source: Invented by author

So, in the above figure it can be seen that supply risks is built upon four types of risk. These are environmental, supplier, market and item risk. On the other hand, supplier risk can be divided into financial, operational and strategic risk.

**Table 2.** Overview of risks and its definitions and examples

Source: Invented by author

			<b>Definition</b>	<b>Example</b>
<b>Supply risk</b>	Environmental risks		Any uncertainty coming from the supply chain environment interaction (Jüttner, Peck & Christopher, 2003)	Accidents, earthquakes
	Supplier risks	<i>Financial risks</i>	Problems with cash flow, liquidity risks (Heckmann, Comes & Nickel, 2015)	Price fluctuations, inflation
		<i>Operational risks</i>	Supply-demand co-ordination which comes from “inadequate or	Quality or delivery problems, production failures



			failed processes, people and systems” (Chen, Sohal & Prajogo, 2003, p. 2187).	
		<i>Strategic risks</i>	Risks that come from bad collaboration and relationship between buyer-supplier (Hoffmann, 2011)	Strategic motives of both supplier and buyer do not match
	Market risk		Risks that come from global sourcing, market capacity constraints, market price increase and the number of qualified suppliers (Zsidisin, 2003, p. 18)	currency fluctuations, long-term cost savings and natural disasters and transportation times
	Item risk		Risks coming from impact on profitability and nature of product application (Zsidisin, 2003)	products are unavailable to purchase, companies can sell less which has in turn a negative impact on profitability / as new products cause to have more risks than already existing products as less is known about new products

So this part of the paper highlighted different types of risks and mapped them accordingly to make a clear overview of what risks there are and how they coincide. Looking at supply risk it is divided into four types of risks; environmental risk, supplier risk, market

risk and item risk. In turn supplier risk exist from financial risk, operational risk and strategic risk. In the table above an overview of all the risks and its definitions and examples can be seen.

## 2.5 In order to hedge for different types of risks, organisations can make use of risk mitigation strategies

So in order to hedge for all these negative outcomes, companies can make use of different strategies in order to manage the risk. Manuj and Mentzer (2008) created based on literature six different risk management strategies. These are postponement, speculation, hedging, control/share/transfer, security, and avoidance. “Postponement entails delaying the actual commitment of resources to maintain flexibility and delay incurring costs (Bucklin, 1965, as stated in Manuj & Mentzer, 2008, p. 206). Bucklin (1965), as stated in Manuj and Mentzer (2008), mentions that “the principle of speculation holds that changes in form, and the movement of goods to forward inventories, should be made at the earliest possible time in the marketing flow in order to reduce the costs of the marketing system” (p. 207). Another risk management strategy is hedging, which simply holds that companies with global supply chains have a very dispersed portfolio of suppliers so that the risk is spread and eventually gets less because there are more alternatives. Control/share/transfer can be seen as the control or transfer or share of risks in the form of vertical integration, contracts and agreements (Manuj & Mentzer, 2008). “Global supply chain security encompasses information systems security, freight breaches, terrorism, vandalism, crime, and sabotage” (Manuj & Mentzer, 2008, p. 210).

In their paper Harland, Brenchley and Walker (2002) provide a risk management tool which is tested in four case studies. Next to that, they discuss about the experiences using this tool and conclusions are made whether this tool has the potential to be further investigated and developed for broader applications (p. 51). The supply network risk tool can be seen as a tool which can help companies with identifying, assessing and managing risk. As can be seen in the figure below, the tool is divided into different boxes. The tool starts thus by mapping the supply network, bringing all the players in the supply chain. After the supply network is in chart, the risk and its current location are identified and in the thirds step also assessed. When the risk is identified and assessed, the risk is managed. After it is managed collaborative supply network risk strategy is being created and finally implemented.

So, as stated in the beginning of this section global supply chains have a high risk due to the different links connecting a wide spectrum of companies. In turn, these links are sensitive for disruptions, breakdowns and natural disasters. Therefore, risk management might be a good way to try and mitigate these risks as much as possible. But before companies can understand these risks, they have to know what risks exactly are, as this is a very broad concept. In its broadest sense, risk is built upon two concepts; the likelihood and consequence of the occurrence and with the help of a risk matrix the hight of the risk can be assessed. Next to that, risk is built upon different types; general risk like pure risk, liquidity risk etcetera but also supply risk. As this research is merely focused on the supply side, the most if focused on these type of supply risks which are the following represented in the table below. Finally, companies can make use of several risk management strategies in order to mitigate all these sorts of risks, as also explained in this section. So, now that risks and risk management strategies are introduced in general, a more focus is put on the risks and its

strategies in times of pandemic in general and COVID19 specific. There is thus taken a look, which risks come with a pandemic like COVID19.

## 2.6 A pandemic is a very broad concept and can be explained in many ways

As the previous section gave a broad overview of what risks specifically are, it also gave a categorization of what specific risks there are and how they are interconnected with each other (see figure 5). This chapter will focus on what risks in the previous section are related with and affected by a pandemic in general. But before going deeper into what a pandemic really is, it is useful to understand what a pandemic really is.

There are several definitions of a pandemic, however, before going into them specifically, it can be helpful to break the word pandemic down. According to Grennan (2019), actually, the word pandemic can be broken down into different other definitions; endemic, outbreak and epidemic. So if we take a deeper look into these terms, a better understanding of the word pandemic can be created. First of all, an endemic can be seen as a disease that is present at a stable rate among a group of people for instance Malaria in Africa. After that, there is an outbreak which means that there is a sudden increase of people infected with a certain disease. So, the disease starts to flow. Consequently, there is an epidemic, which holds that the outbreak disperses over a larger geographical area. And finally, there is a pandemic which actually can be seen as an epidemic that spreads globally (Grennan, 2019). So, this already creates a better view of what a pandemic is and how it arises. Now, a deeper look is given into the specific definitions of a pandemic. In their paper, Morens et al. (2009) have several definitions for the word pandemic. According to Last (1988) as stated in Morens et al. (2009) a pandemic can be seen as an “epidemic ... over a very wide area and usually affecting a large proportion of the population” (p. 94). Another definition of a pandemic is an epidemic “distributed or occurring widely throughout a region, country, continent or globally” (Morens et al., 2009, p. 1018). Also, a pandemic can be seen as “epidemics (occurrence of disease above an expected norm) that affect at least several countries on more than one continent” (Jonas, 2013, p. 2)

In the paper by Jonas (2013), pandemic risk is assessed. The paper looks at what effect a pandemic has on development, and how risk management with regard to a pandemic could be improved, both nationally as internationally. According to Jonas (2013) pandemic risk can be seen as “the expected value of the impact of widespread infectious disease in humans on human health, economies, and communities” (p. 2). However, the paper focusses on several risks ranging from health related risks to economic related risks. As this research focusses on businesses who are largely economically affected, a focus is merely put on the economic risks assessed. So, a first economic risk is occurrence of a systemic economic shock. In other words, a pandemic can create a “possibly catastrophic economic downturn associated with shifts in demand, supply shocks, and economic and social disruptions. Because countries are connected by, and depend on, travel, trade and capital movements, the shocks would propagate across interconnected economic and financial systems worldwide, possibly ahead of the contagion itself” (Jonas, 2013, p. 2). These risks can have a range of possible outcomes; a mild case, a moderate case and a severe case. Next to that, global trade has risen in the last few years; “as a result, global trade and GDP have grown in tandem recently, both increasing by 26 per cent during 2008–18 period” (WTO, 2019, as stated in Sharma et al., 2020). As a result of a pandemic, this global trade can come to a standstill

with all the consequences for businesses that are so interconnected with each other with long supply chains and just-in-time deliveries which can cause certain stockout risks. So, globalisation has led to the fact that a pandemic is even more risky; “–the growing international movement of goods, services, and people– has complex links with pandemic risk” (Jonas, 2013, p. 11). Globalisation but also modernization leads to high risks due to a pandemic; “modernization may make economies more vulnerable to pandemic impacts because of dependence on long supply chains, just-in-time deliveries, and a growing part of the economy consisting of networked industries” (Jonas, 2013, p. 11). Furthermore Jonas (2013) states that “a pandemic will always impact human health and reduce the labor supply, as disease spreads and may come to affect a sizeable part of the population” (p. 6). So this also indicates a risk of labor supply shrinking causing operational problems for companies. Next to that, a pandemic can have a higher negative impact on developing countries like Bangladesh leading to the fact that factories have to shut down, which has a high risk for companies buying their products in these countries leading to high operational and item risk. So, this already gives a broad view on what risks can come with a pandemic. As there are of course many different more specific risks, these are not mentioned here as it would extend the scope of the research. In order to give a better overview on which risks are exactly affected by a pandemic, a table is shown below.

**Table 3.** Overview on which risks are affected by a pandemic

Type of risk			Affected	How
Supply risk	Environmental risks		High	A pandemic leads to serious uncertainties coming from the supply chain environment interaction
	Supplier risks	<i>Financial risks</i>	High	a pandemic can create a “possibly catastrophic economic downturn associated with shifts in demand, supply shocks, and economic and social disruptions” (Jonas, 2013, p. 2)
		<i>Operational risks</i>	High	Labor supply is shrinking, stockout risks leading to “inadequate or failed processes, people and systems” (Chen, Sohal & Prajogo, 2003, p. 2187).
		<i>Strategic risks</i>	Medium	A pandemic has a somewhat lower impact on strategic risks, as this has more to do with supplier-buyer relationship; it is important to have a good relationship during a pandemic, however, it is not top priority
	Market risk		High	A pandemic has financial effects on currency fluctuations, and can also lead to longer transportation times causing high market risk
	Item risk		High	Also concluding from the operational risks, pandemic can lead to serious labor and product scarcity, leading to the fact that products are unavailable to purchase leading to high item risk

Source: Invented by author

If we assess a pandemic with regard to the risk matrix it can be seen that the likelihood is very small, but that the consequence is very high.



**Figure 4.** Risk matrix of a pandemic

Source: Protechtgroup (n.d.)

So, a pandemic can be seen as an epidemic “distributed or occurring widely throughout a region, country, continent or globally” (Morens et al., 2009, p. 1018). Also, a pandemic can be seen as “epidemics (occurrence of disease above an expected norm) that affect at least several countries on more than one continent” (Jonas, 2013, p. 2). Logically, due to the fact that a pandemic is so widespread and affecting many countries, it also has a wide range of risks coming with it. As a pandemic leads to many uncertainties in the environment of global supply chains, a pandemic has high environmental risk. Next to environmental risk a pandemic has serious financial risks for companies as it creates serious economic downturns ranging from shifts in demand, supply shocks and economic disruptions. A pandemic also has very high operational risks as it might for instance lead to shrinkage of labor, leading to inadequate processes within companies. Strategic risk is somewhat less affected, as a strategy merely comes after a pandemic and is not a so called priority. Finally, market and item risks are highly affected as a pandemic leads as previously mentioned to inadequate processes, supply shocks, stockouts and so on leading to the fact that transportation times are longer or products are even unavailable to purchase. This part already gave an overview on what a pandemic is in general and what risks come with it, the next part will merely focus on COVID19 specific and what risks also come with this pandemic.

## 2.7 COVID-19 comes with many risks, especially affecting supply chains worldwide

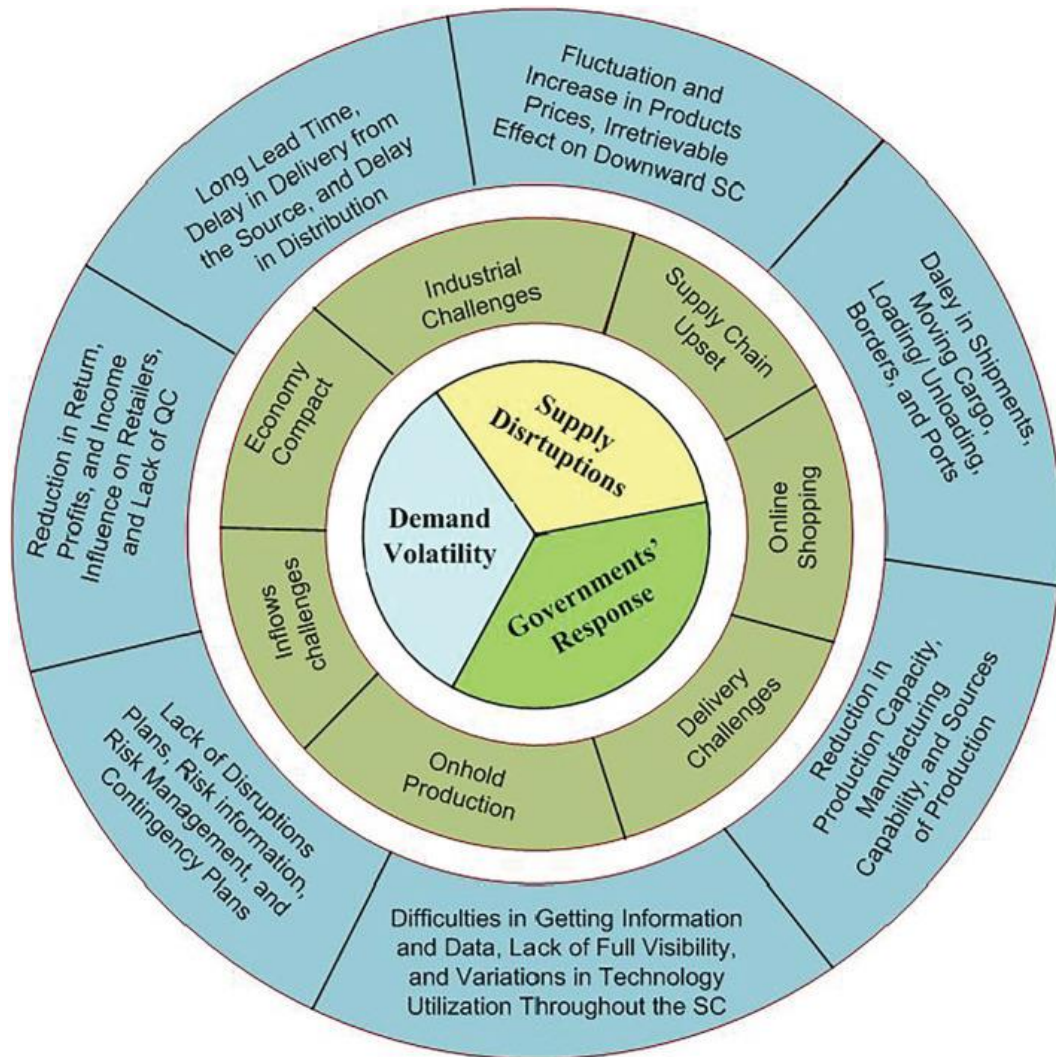
In this part, a closer look is taken at COVID-19 itself. As in the previous part a more general view of a pandemic is given, this part will dig deeper into what kind of pandemic COVID-

19 really is; what measures are taken, what risks go with it and later also how companies can cope with it. It is December 2019 and in the Chinese city of Wuhan there are reports that people began to fall ill with an acute SARS coronavirus. The Chinese government started to confirm these reports after a long period of denial, and the city went into lockdown. However, too late and several other countries became affected by the virus and soon Europe became acquainted with the virus and in March, the World Health Organisation (WHO) declared a pandemic and several countries went into lockdown. According to Freedman (2020) “economic activity around the world was grinding to a halt. Markets were crashing as finance ministers and central banks rushed to devise rescue packages, all of which inevitably involved staggering amounts of debt” (p. 25). Also, in the manufacturing sector, COVID19 has resulted in several measures like trade barriers and export restrictions which caused the credit market to be negatively affected (Handfield et al., 2020, as stated in Butt, 2021). Next to that, according to Handfield et al. (2020) as stated in Butt (2021) exchange rates and commodity and energy prices of developing countries are heavily decreased. According to WTO (2020) global trade will likely fall between 13 and 32% in 2020. In a US case it could also be seen that nearly ten million citizens became unemployed (Chaney & Morath, 2020, as stated in Baker et al., 2020). According to Baker et al. (2020) COVID19 has led to a high uncertainty shock which can be seen as larger than the financial crisis in 2008-2009 and the Great Depression of 1929-1933. So this already imposes large economic impacts the virus has.

According to Ivanov (2020), COVID19 can be characterized by three different components. These are the following: long-term unpredictable disruption, outbreaks in many populations and disruptions in supply and demand. The crisis can be seen as highly impacting several departments in businesses like sales, purchasing and the supply chain. Next to that it causes global supply chains being most at risk as a result of lockdowns all over the world and therefore companies lack the capacities to continue production, creating imbalances of demand (Ivanov & Dolgui, 2020). What is more; these breaks in the supply chain have resulted in the fact that many companies went into bankruptcy causing disruptions in many sectors. Businesses currently managing the crisis in an effective way, however, do not have any guarantee of success in the future. Economies, but also the whole world will change due to this outbreak; some markets will face heavy losses or even no longer exist in the future (Donthu & Gustafsson, 2020). Next to that, it can indeed be seen that labor supply is shrinking in times of COVID19 (Kahn, Lange & Wiczer, 2020, p. 1). This is due to the fact that “Roughly a quarter of the workforce has young children at home and may therefore be constrained from full-time work” (Kahn et al., 2020, p. 1). “Besides that, about one-fifth of the workforce is in an at risk group or lives with someone who is more likely to suffer severe consequences from COVID19” (Kahn et al., 2020, p. 1). Also, people have to work from home, however, to which extent is this possible? So there also is a challenge and risk leading from COVID19.

One of the most important negative effects of COVID19 is the reduction in demand for goods and services due to lockdowns all over the world. The lockdowns consequently disrupted many supply chains (Grida et al., 2020). In their paper Sharma, Adhikary and Bikash Borah (2020) take a look at which impact COVID19 has on supply chains and came up with several challenges. A first challenge has to do with demand supply as demand uncertainty is one of the most called risks. What is interesting to see is that companies in some sectors had a decline in demand, some companies in other sectors had an increase in demand. Automobile and transportation sectors have seen a decline in demand, as a result of

the fact that people need to stay at home. As where other sectors like the technology industry saw an incline in demand; people needed more laptops, tablets, headsets because they are now working more from home. As mentioned earlier, COVID19 first affected China, which is at the core of many global supply chains, leading to many disruptions in these supply chains (Luo & Tsang, 2020, as stated in Goel et al., 2021). COVID19 shocked supply chains causing demand and supply ripples; chaos and resonance effects across global networks (Guan et al., 2020, as stated in Sarkis, 2020). According to Butt (2021) supply chains suffered heavily from COVID19 causing big pressures on these chains due to the fact that free movements of goods got restricted as a result of lockdowns implemented by governments worldwide. First of all, many organisations had to put movements of raw material on pause resulting in suppliers and logistics departments to face big challenges. So this in combination with the fact that demand remained unchanged, prices increased. Next to this, production has come to a standstill. According to Xu et al. (2020) COVID19 has led to disruptions of most global supply chains (GSCs) like pharmaceuticals, food, electronics, automotive industry, etc. “Unlike previous major disruptions, COVID-19 has adversely affected GSCs throughout all their stages with major turbulences in manufacturing, processing, transport, and logistics, as well as significant shifts in demand” (Xu et al., 2020, p. 153). Chinese supply chains are under heavy pressure leading to the rising global concern for shortages of critical products (Chatterjee, 2020, as stated in Magableh, 2021). What is more, COVID19 occurred together with the trade wars between the USA and China, leading to the even more instability of GSCs and trading systems. In the paper by Magableh (2021) the impact of COVID19 on SCs is being summarized. In this research there are three main aspects: the main causes of the disruptions, the challenges associated with COVID19, and the trend of the crises. Three main interrelated factors led to the disruption of the SC operations: change in supply, fluctuation in demand, and the reaction of governments and countries to confront the pandemic. In the figure below the impacts can be seen.



**Figure 5. Impacts COVID19 on SCs**

Source: Magableh (2021), p. 4

According to Kutzner and Rajal (2020) as stated in Frederico (2021), there are many problems related to SC management regarding sourcing strategies causing disruptions in the SCs. This is caused by lack of properly managing risk (risk management), single sourcing strategies, delivery fails and lack of transparency and visibility. Therefore Frederico (2021) proposes to make the SCs more resilient and responsive. According to Javorcik (2020) resilience can be defined as: “the ability to return to normal operations over an acceptable period of time, post-disruption“. After COVID19 a Supply Chain 4.0 is proposed, which can be seen as a transformational strategic orientation. Sharma et al. (2020) state that due to the negative effects there has been an increasing interest in building a more resilient supply chain during and after COVID19;

“multiple cases show that there are also suggestions made to improve supply chain resilience. Common among them is the use of technology such as AI and blockchain-based technologies which may help supply chains become more resilient. Others suggest that greater collaboration among value chain members are required to create a more resilient supply chain” (p. 7).



Also Feinmann (2020) highlights the need for more resilient supply chains. Furthermore, Donthu and Gustafsson (2020) stated that during such a crisis like it is now with COVID-19, it can help companies to establish the appropriate plan when having a deep understanding of business risks. Next to that, they state that demand estimation during this crisis can be seen as the greatest challenge for a company. However, flexibility in the supply chain can be enhanced by identifying risks. According to Sarkis (2020) supply chains will change post COVID19. First of all there will be technological innovations like earlier mentioned SC 4.0. Next to that there will be more data-driven awareness-based collective action (Scharmer, 2020, as stated in Sarkis, 2020). But also collaborative systems like blockchain.

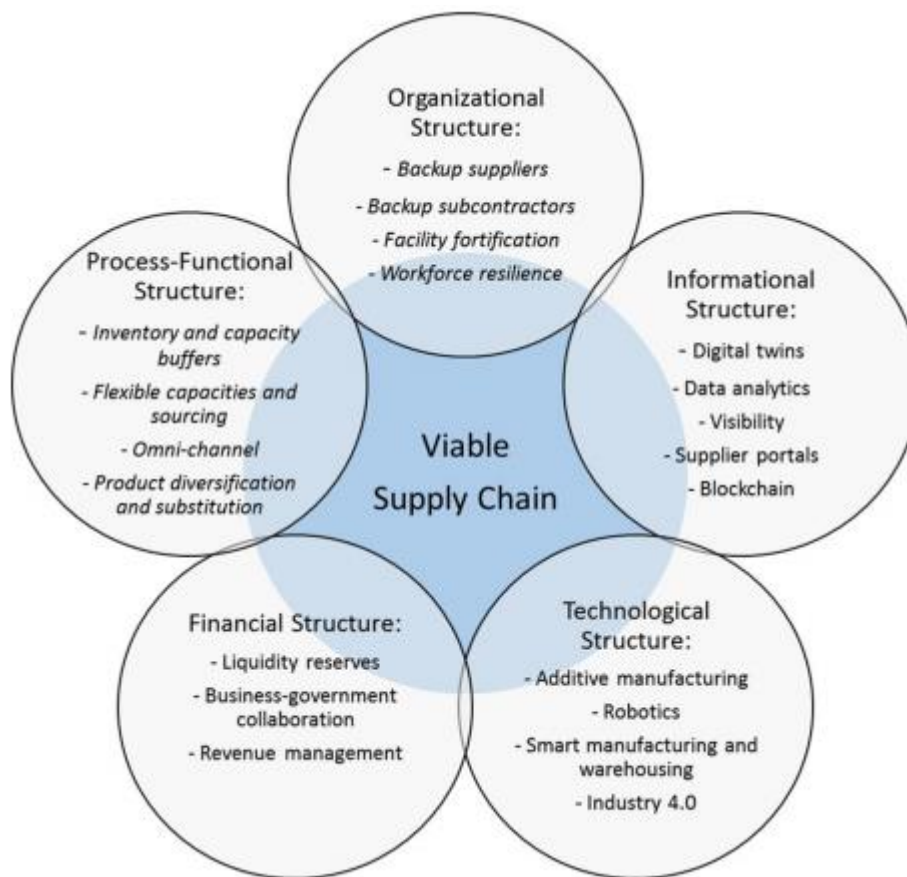
So, this part already gave quite an overview of the risks and what companies can do in order to cope with COVID19. Concluding, COVID19 has had a major impact on global supply chains as China was hit first and can be seen as the centre of many supply chains all over the world. Leading to ripples and shock within these supply chains. In order to restore from COVID19, organisations should build resilient and responsive supply chains based on new technologies like blockchain leading to SCs 4.0. The following part of the paper will tell more about risk management with regard to COVID19; so it goes deeper into what strategies can be used in order to hedge for these risks and cope with the virus.

## 2.8 There are several general risk management strategies which can be used during a pandemic and COVID19 in specific

Now that the risks are clear, a more general view on what can be done in order to cope with a pandemic; the strategies. As means the same for the risks, also the strategies are not viewed into depth but more in general in order to give a view on how companies can cope with it. One strategy posed by J.M. Crick and D. Crick (2020) is ‘coopetition’ which actually means a combination of ‘competition’ and ‘cooperation’ as it should “positively affect company performance” (p. 208). So these definitions already show of what this strategy holds; companies who normally compete with each other have to work together for the greater good. Another strategy proposed by Friday et al. (2021) is a more collaborative approach in order to maintain optimal inventory and mitigating stockout risks during a pandemic. This strategy involves collaborative planning, forecasting, replenishment but also SC collaborative risk management. Because of the fact that businesses more and more rely on each other, relationship building is very important. There is much written about how B2B managers can establish and maintain strong relationships in order to ensure essential business operations (Jap & Anderson, 2007; Palmatier, Dant, Grewal, & Evans, 2006; Wilson, 1995, as stated in Obal & Gao, 2020). In stable environments and situations, these relationships are merely focussed around efficiency and profitability, however, during more unstable situations like with a pandemic, Obal and Gao (2020) propose that “firms should consider re-evaluating their existing relationships based on criteria that are uniquely appropriate for such an unstable environment” (p. 247). So, this could also be seen as a strategy; re-evaluating the existing relationships based on what is really happening during such a uncertain period of time like in a pandemic. In their paper, Sharma et al. (2020) state that there are 8 specific strategies in coping with COVID19 which will now be explained more in detail. By examining the tweets of NASDAQ 100 firms, they came up with these strategies. So these can give a broad overview on how most companies reacted to COVID19 with regard to procurement and the supply chain. These strategies mainly implied reimagining and redesigning the supply chain and developing a culture of collaboration just

like the other authors implied.

Until now this paper has described what risk is and what companies can do in general to mitigate these risks with the help of risk management strategies. After that, the paper described what a pandemic is and what risks come with it after which a more focus is put on COVID19 and its risks. Furthermore, it is explained what companies do and can do in terms of strategies to hedge against these risks coming from pandemics like COVID19. So now the following part of the paper will connect the two concepts already explained; risk management and COVID19. I.e. what risk management models can and do companies use in order to hedge for the complexity of risks coming from this pandemic. Therefore, this part of the paper will come up with some examples of risk management models used in times of COVID19 and finally one is chosen to use in the research.



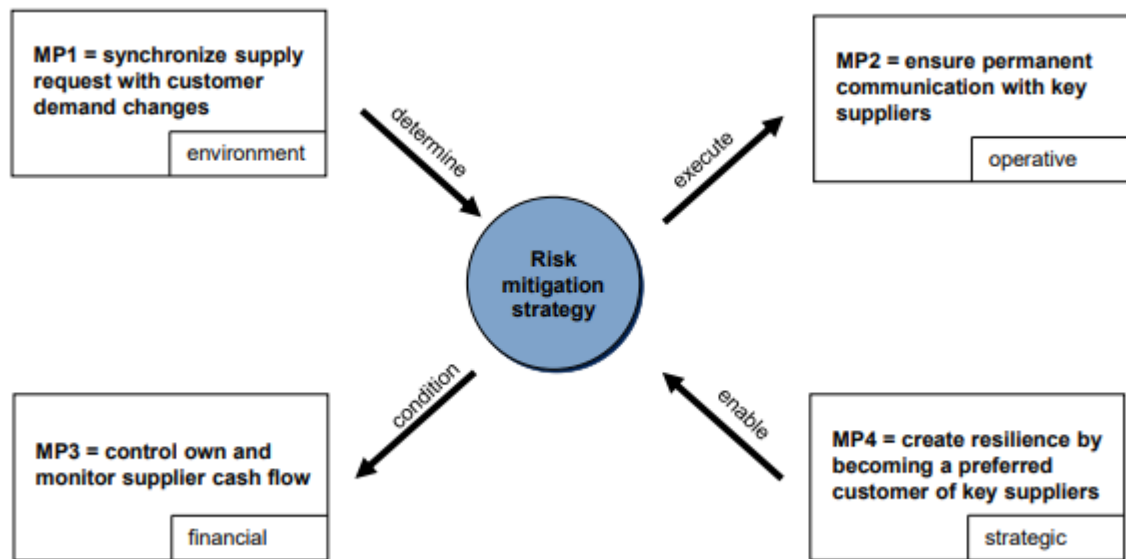
**Figure 6.** Viable supply chain management model

Source: Ivanov, 2020, p. 9

In a paper by Ivanov (2020, p. 9), another risk management model is proposed based upon creating a viable supply chain. This viable supply chain is built upon five different aspects; organizational structure, informational structure, technological structure, financial structure and process-functional structure. So if there is a structure in all these five components, a supply chain gets viable which can help to hedge against the risk coming from COVID19. But in order to get structure in these components, there are different methods. For instance for creating organizational structure companies can make use of back-up suppliers, subcontractors and workforce resilience. And for the cross-functional

component, companies can make use of inventory and capacity buffers. For the financial part, liquidity reserves are a good way to create structure, but also creating business-government collaboration. So this already gives a bit of an overview on how this model looks like and can be used.

Another risk management strategy developed during the COVID19-period is the synchronicity management model by Schiele et al. (2020). This model is based four components; the operational, financial, environmental and strategic risks a company faces during times of crises like with the pandemic nowadays. It holds that all four components should be synchronized with each other in order to create a well set strategy in mitigating risks. Below a visual representation of the model can be seen.



**Figure 7.** Risk mitigation strategy

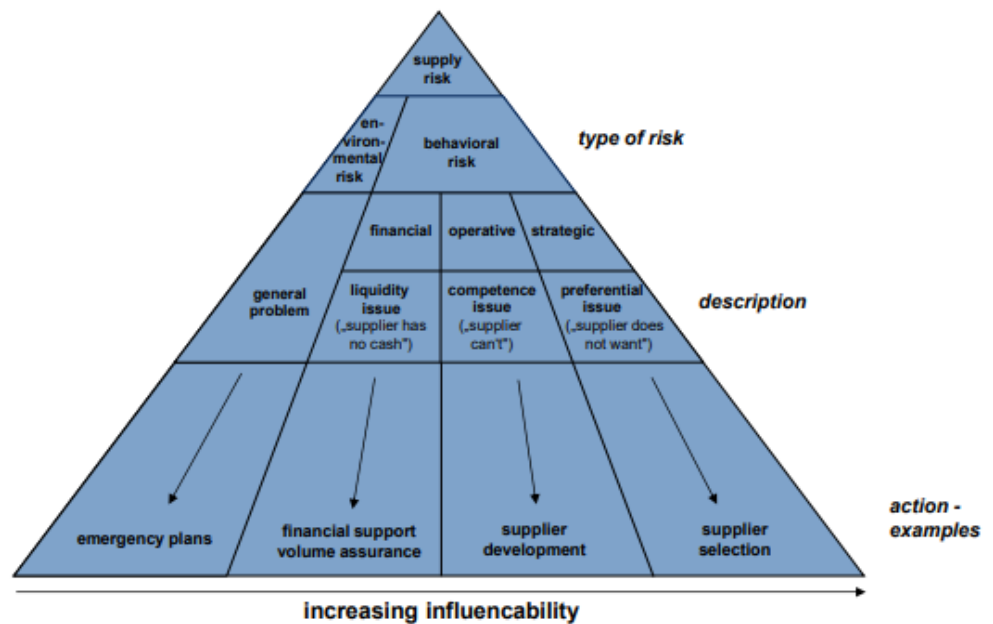
Source: Schiele et al. (2020)

So, when assessing these models it can be seen that the first model might be too specific as there are already several strategies named. Also the five components might be too broad for this specific research. Therefore, it can be concluded that the second model is the best option. This is due to the fact that it perfectly fits the risks categorized in the beginning of the paper: environmental, operational, financial and strategic risks. These risks are all covered in this model and should therefore be chosen to be further investigated and used for this specific research.

## 2.9 A model proposed is the synchronicity management model which synchronizes several processes

This part of the paper will explain the model by Schiele et al. (2020) about synchronicity management in order to cope with COVID-19 risks. This model can be used to analyse whether the focus groups of this research exercise the same model, or that there may be another dimension be added to it. In the paper by Schiele et al. (2020), synchronicity management is identified as a novel risk management strategy in order to analyse the impact of COVID-19. The aim of this management model is to synchronize the supply chain with customer demand. But, first of all the supply risk management model by Hofmann, Schiele

and Krabbendam (2013) will be introduced before going deeper into the synchronicity management model.



**Figure 8.** Supply risk management model

Source: Hofmann, Schiele & Krabbendam (2013)

In the table above, it can be seen that there are different types of risks; supply risk, which is divided into behavioral risk and environmental risk. Also, behavioral risk is divided into financial, operative and strategic risks. Environmental risk can be seen as a general problem after which emergency plans can be integrated. The financial risk holds that supplier has no cash, in order to hedge for this risk, companies can make use of financial support volume assurance. Operative risk means that the supplier cannot produce; they do not have the competence. So what companies can do is to cooperatively develop the product with the supplier. And the final risk, strategic risks, means that the supplier does not want and therefore companies have to look properly to which supplier to select. In the following part, the different risks are identified and explained, after which specific risk management strategies in order to hedge against these risks are analysed.

### 2.9.1 Environmental risk has to do with uncertainties coming from outside the organisation

According to Jüttner, Peck and Christopher (2003) environmental risk hold any uncertainty coming from the supply chain environment interaction. These risks can come from for instance accidents, socio-political actions or extreme weather or earthquakes. According to Hoffmann and Schiele (2013) environmental risks are certain events in the environment of a supplier or supply chain relationship that cause trouble, like terrorist attacks or labor strikes (Chopra and Sodhi, 2004; Kleindorfer and Saad, 2005; Schoenherr et al., 2008). In order to hedge for environmental risks, the following risk management proposition holds: “In crises, risk mitigation strategies should be synchronized with customer demand changes” (Schiele et al., 2020, p. 5). This comes out of the fact that some companies in the research remarked that the demand changes are influencing their supply strategies. And some were

systematically doing so. Also, in the research by Schiele et al. (2020) the companies were asked whether they used an absorptive (keep flow running) or used an adaptive strategy (stopping and preparing for ramp up). Only the fact was that most companies did not do either of them. As stated above, most of them looked at how their customers reacted and tried to be as close to their suppliers. However, some companies did not take their sales development into consideration and just bought what could be bought. Therefore, in this research there is taken a look into the fact if companies do take their sales development, their demand side into consideration or that they just buy what they can (bulking/hoarding). Or that they maybe use an absorptive or adaptive strategy. In order to hedge for these environmental risks, organisations should according to the synchronicity model, synchronize customer request with supply demand. So in other words organisations should look at their environment, their demands and adjust their supply accordingly.

### 2.9.2 Operational risk has to do with internal processes

According to Chen, Sohal and Prajogo (2003) operational risk is about supply-demand coordination which comes from “inadequate or failed processes, people and systems” (p. 2187). Examples are quality or delivery problems. Operational risks derive from operations, thus from activities and resources. Every potential source that generates a negative impact on the information, goods, and cash in operations can be seen as an operational risk (Chand, Raj & Shankar, 2014). So, concluding operational risks refer to “a company’s reduced ability to produce and supply products and services as a consequence of a breakdown in a core operating, manufacturing, or processing capability” (Chand et al., 2014, p. 382). For operational risk, there are several operative reactions that went on in companies. First of all there were the hygienic measures; employees began to wear masks and were working on 1,5 meters distance. The next step was when supply managers got to know about the problems, they started intensive calls with their suppliers to secure supplies. The third step was that supply managers bought stock, and the final step was that they let supplies fly in. But also according to Pereira, Lago da Silva, Tate and Christopher (2020) as stated in Schiele et al. (2020) “intense collaboration between the buyer and a critical supplier to overcome any supply disruptive events” (p. 6). Therefore it is concluded that in reaction upon operational risks, intensive communication based on good relationship is the best option. So in other words, organisations should ensure permanent communication with key suppliers.

### 2.9.3 Financial risks are uncertainties coming from cash flow and price fluctuations

According to Heckmann, Comes and Nickel (2015) as stated in Ghadge et al. (2020) “financial risk is an umbrella term covering several risk types such as foreign exchange risk, market risk, price fluctuation, inflation risk, etc.”. However, in the paper by Schiele et al. (2020) financial risk is more viewed as a risk that there is going to be trouble in the cash flow. When looking at financial risks it is all about considering cash. However, few supply managers took financial factors and cash into account. Only one firm applied a financial risk management strategy; “We're going to be busy monitoring the cash flow. This was also important in the beginning [of the crisis], it was a bit of a balance between, monitoring cash flow and security of delivery where we also noticed hamster behavior from our customers.” (Schiele et al., 2020, p. 6). Therefore from a financial risk management strategy it is proposed that it is important that, throughout the crisis it is important to keep view on the cash flow and financial situation. These are cash flows of the own company but also the cash flows

from suppliers. This to check whether suppliers have the financial ability to keep business running.

#### 2.9.4 Strategic risk arises when buyer and supplier has different motives, in order to hedge for these risks, organisations should try to becoming a preferred customer

According to Tapiero and Grando (2008) strategic risks come to the surface when companies exchange with other firms whose motivations may differ. “In these situations information and power asymmetries, ‘a tyranny of minorities’, are what make it possible for the few, the ‘blessed’ with some advantage, to threaten and control the many” (Tapiero & Grando, 2008, p. 7). According to Hofmann (2011) strategic risk arises when the supplier can fulfil a certain requirement but is unwilling to do so. Also, bad collaboration and relationship can lead to strategic risks, therefore many companies seek to become a so called preferred customer. Strategic risk can be seen as a part of risk management that is often overlooked. This is due to the fact that these risk do not come to the surface when there is business as usual, but only come up when crises emerge (Reichenbachs, Schiele, & Hoffmann, 2017, as stated in Schiele et al., 2020). Throughout the research it became clear that companies have to become a “preferred customer” to their suppliers in order to ensure supplies in times of shortages. I.e. “The challenge for buyers is to get the preference of their suppliers, if these have to make the choice whom of their customers gets material in times of scarcity” (Schiele et al., 2020, p. 6). Therefore in order to hedge for strategic risks, companies have to create flexibility through achieving a preferred customer status with critical suppliers.

Becoming a preferred customer can be a good way to hedge against strategic risk, therefore this part of the paper focusses on this phenomenon. What is a preferred customer and how to become one, but also what benefits it brings. Preferred customer is part of the supplier relationship management and it can be seen as successful relationship management. According to Nollet, Rebolledo and Popel (2012), a preferred customer is “a buying organization who receives better treatment than other customers from a supplier, in terms of product quality and availability, support in the sourcing process, delivery or/and prices” (p. 1186). The process of becoming one can be seen as very complex, expensive and often uncertain. Also, in order to become a preferred customer, four aspects should be taken into consideration: initial attraction, performance, engagement and sustainability (Nollet et al., 2012, p. 1186). Bemelmans, Voordijk, Vos and Dewulf (2015, p. 180) state three antecedents of gaining a preferred customer status: customer attractiveness, value of customers and customer segmentation. According to Dwyer et al. (1987, p. 16) as stated in Bemelmans et al. (2015, p. 180) “attractiveness” can be seen as “the degree to which buyers and suppliers interactively achieved a reward-cost outcome in excess of some minimum level”. Walter et al. (2001) as stated in Bemelmans et al. (2015, p. 180) state value as “the perceived trade-off between multiple benefits and sacrifices gained through a customer relationship”. Finally customer segmentation “takes place on the basis of the attractiveness and the value of customers to the supplier” (Lonsdale and Watson, 2015, as stated in Bemelmans et al., p. 180). So this already imposes how organisations should become such a preferred customer, which can be seen however as a complex process. However, it could be very beneficial for many organisations, therefore, now the benefits of being a preferred customer will be explained.

Being a preferred customer comes with privileges like a preferential allocation of

resources and time. In their paper Nollet et al. (2012, p. 1187), provide a table which possible benefits such a status can have which will now be explained. The first one is product quality and innovation; as the supplier is willing to customize their products according to the wishes of the buyer. Furthermore, it holds that the supplier will suggest quality improvements and innovations. The next one is support, which holds that the supplier will provide information in a timely manner. This information is about products and markets and sharing of new solutions. Delivery reliability is the next one, which maybe is the most important one during COVID19 as it holds that the supplier will give priority to the buyer when demand exceeds supplies, so in times of scarcities. Next to that the supplier will make changes in delivery schedules according to changes in demand or delivery requested. And finally, a supplier will keep safety stocks for their preferred customer. So, this already imposes that being a preferred customer status is very beneficial, especially in times of crises.

## 2.10 Based on the theory several propositions can be stated

Based upon the previous parts, several research propositions can be made. What definitely can be seen is that most of the private entities get support from the government. In a paper by Bartik et al. (2020) it could be seen that many small private businesses got support by the government. In another paper it could be seen that more and more private companies are taken over by governmental institutions in order to protect income, jobs and firms; “In response to the COVID-19 crisis, governments are rolling out a vast array of policy measures to support the business sector, including taking equity stakes in companies in financial distress” (OECD, 2020, p.). Also in a paper by Abate et al. (2020) it is concluded that state ownership will gain more importance as a result of COVID-19; “In response to the COVID-19 crisis, governments are taking equity stakes in financially distressed companies”. So all in all, it can be seen that not the public, governmental institutions/entities are in trouble but the private entities. Even so far that the public entities have to support the private entities to keep them alive.

All in all, it is highly unlikely for a public organisation to go bankrupt due to the fact that they are supported by the government. So therefore, a proposition this research tries to test is that indeed these private entities are more in trouble than public entities do. Therefore the first hypothesis this research is trying to test is:

***Proposition 1:*** “*Private organisations encounter more financial problems than public organisations during COVID19*”

Remote sourcing can be seen as a financially favourable way of sourcing your products, however, there are some negative side-effects as they come from far away and often go through long and complex supply chains. In their paper Cho and Kang (2000) review the challenges and risks of global sourcing. The first challenge or risk is related to international logistics as they cover longer distances than domestic logistics. This longer distance leads to longer lead times, requiring more inventories leading to the fact that there is a higher sensitivity of things going wrong. Also transportation systems might be very different in other countries than the domestic with regard to reliability and unexpected delays. Another challenge might be cultural differences; according to Cho and Kang (2000) differences can cause “miscommunication and create further problems in supplier evaluation, contracting, product inspection and maintaining relationships in global sourcing” (p. 547). A final challenge are regulations as “several governments regulations influence global sourcing directly and indirectly and often make it complicated” (Cho & Kang, 2000, p. 548).

Especially in times of COVID19 it can be assumed that these side-effects get worse as Asia was the first part of the world where the Corona virus hit. Therefore we assume that organisations who source their products from Asia or other overseas parts of the world, encounter more problems during COVID19 especially related to supply security and speed. That makes the second hypothesis:

***Proposition 2:*** “Organisations who do local sourcing encounter less problems than companies who do remote sourcing due to higher transportation times and cost” (impact)

Also, in the theory part it is stated that risk management strategies can help organisations by hedging for several risks. As COVID19 comes with many risks, it can be assumed that risk management strategies might help in order to hedge against them. Truong, Quang and Hara (2019) state that due to natural disasters and crises of the last decades made the world more unpredictable and unstable. Next to that, SCs have become way more complex due as a result of globalisation. Therefore it has made these SCs more sensitive to disruptions. In order to cope with these effects, SC risk management might be a solution. “Supply chain risk management is the integrated process of identification, analysis and either acceptance or mitigation of uncertainty and risk in the supply chain” (Wiengarten et al., 2016, p. 13). Risk management can be seen as a good way to cope with risks (Manuj and Mentzer, 2008; Blome and Schoenherr, 2011; Brindley, 2004; Knemeyer et al., 2009). It can be thus assumed that organisations who use risk management encounter less problems during COVID19 as they are better able to cope. This makes that the third hypothesis is:

***Proposition 3:*** “Organisations using (supply chain) risk management are better able to cope with COVID19” (strategies)

According to Bemelmans et al. (2015) being a preferred customer can have several antecedents which are the following “attractiveness and satisfaction, relationship development, relationship specific investments, preferential resource allocation, suggestions for innovation/improvement, and maturity of supplier relationship management” (p. 183). Schiele et al. (2012a) as stated in Bemelmans et al. (2015) comment that “a high level of customer attractiveness and a high level of supplier satisfaction help to ensure the prime commitment of capable suppliers” (p. 183). So in terms of relationship management, being a preferred customer can have many benefits as buyer and supplier are getting closer together. This will lead to the fact that costs will be reduced, interactions between the organisations will grow and overall the supplier will learn more about his buyer and its issues (Schiele, 2012, as stated in Bemelmans et al., 2015). Next to that according to Nollet et al. (2012) being a preferred customer can have several benefits like product quality and innovation, support, delivery reliability, price and cost benefits. Benefits related to quality and innovation have to do with consistency and customization efforts. On the other hand, support is related to the fact that there is more information exchange between buyer and supplier, next to joint problem-solving and more intensive communication. But for this research, the delivery reliability might be most interesting as a benefit of preferred customer. As this means that there is more likely to be timely deliveries, prioritization, safety stocks and deliveries of components missing or damaged. According to Schiele, Calvi and Gibbert (2012), firms benefit from being a preferred customer as it causes them to have privileged resource allocation by their suppliers which might also be interesting for this research. Also,



according to Schiele (2019) it can be seen that public organisations have more difficulties in gaining attention from suppliers and so becoming a preferred customer. “The private actor may have more flexibility when addressing the wishes of the supplier than his public counterpart, whose influencing variables are constrained by a strict legal framework. Eventually, the public buyer may lose the race to gain supplier attention” (Schiele, 2019, p. 121). This might indicate that it is harder for public organisations to become a preferred customer

In a research done by Kunde (2018), a case study is done in which the antecedents and benefits of being a preferred customer is being investigated at Company X with three of its suppliers. All three suppliers agreed upon the fact that Company X was their preferred customer. It was found that being a preferred customer indeed has benefits. For instance supplier 1 delivers Company X short-term in times of shortages in stock or products missing and problems are solved quicker than with other suppliers. In another research done by Franck (...) it is found that a Company X experiences several benefits from being a preferred customer. For instance X gets preferential treatment; “when X encounters any problems, X receives special attention from suppliers who try everything possible to find a solution” (Franck, 2016, p. 9).

So all of the above, might indicate that companies are ensured to be supplied, even in times of crises like COVID19 and are supported by their suppliers if they come into trouble. Next to that, as public organisations are dependent on many legal rules and tendering processes, and encounter more difficulties in gaining attention at the suppliers, it is less likely that these organisations can become a preferred customer. According to Amann and Essig (2015, p. 289), as stated in Praas (2016) the public procurement regulations which has led to the fact that public organisation have to use tendering procedures, are causing complex processes and makes the process time consuming. Therefore, these procedures make it very difficult for buyer and supplier to build a good relationship and maybe becoming a preferred customer. Therefore the fourth hypotheses is:

***Proposition 4:** “Organisations with a preferred customer status are better able to cope with COVID19 and public companies are less likely to having this preferred treatment compared to private companies” (strategies)*

### **3 Methodology**

#### **3.1 Research method: expert interviews are used to gather data**

There are different ways in doing research mainly known as quantitative and qualitative research. According to Borrego, Douglas and Amelink (2009) quantitative research is mainly used for deductive approaches. In other words, the hypothesis defines how the research questions are developed and how data is collected. This can be done in the way of surveys for instance. According to Goertzen (2017) “quantitative research methods are concerned with collecting and analyzing data that is structured and can be represented numerically” (p. 13). On the other hand qualitative research is non-statistical and cannot be represented numerically. Therefore, in this research, qualitative research will be done in the form of semi-structured interviews to gather as much as extended data to study the phenomenon.

For this research expert interviews are being applied in order to get to know more about the specific phenomenon this research is trying to investigate. According to Döringer

(2020), “expert interviews are a widely-used qualitative interview method often aiming at gaining information about or exploring a specific field of action” (p. 1). Therefore, this might be a good way in doing research for this specific purpose. Expert interviews also can have several benefits which will now be further explained. First of all, according to Bogner, Littig and Menz (2009) the first benefit of interviewing an expert is that it “is a more efficient and concentrated method of gathering data than, for instance, participatory observation or systematic quantitative surveys” (p. 2). I.e. expert interviews are a way to shorten time-consuming data gathering processes. Next to that, expert interviews “offer researchers an effective means of quickly obtaining results and, indeed, of quickly obtaining good results” (Bogner et al., 2009, p. 2). Although the fact expert interviews have benefits, it can also bring some cons with it. For instance the quality of the expert interviews depends on the answers of the expert. As mainly is expected of an expert he is capable in answering all the questions, this expectation can differ from what is actually known by the expert, as there are ‘good’ and ‘bad’ experts according to Bogner et al. (2009). For this research 26 different organisations are interviewed about the same subject in the form of expert interviews. Alternatives for the expert interviews are a world café, focus group and Delphi studies. For this research there was a conference and a workshop in the form of a world café. However, the results of the world café were not that much of use for the research. Therefore, a focus is put on the expert interviews and the focus groups as most used information and data for the research.

### 3.2 Data collection and sample: 26 in-dept interviews are done

In order to obtain data for the research, 26 in-depth interviews are done with persons from purchasing departments of several companies in the Twente region. These companies are all members of the NEVI kring oost. NEVI is an association in purchasing and supply management. They offer activities, educations and tools for individuals, organisations and society. In first instance, the University of Twente contacted the NEVI to find out whether there are companies who were willing to participate in the research. The University of Twente consequently sent out an invitation to the companies, via NEVI, to ask them to join the research. Many companies were willing to participate in the research. These companies were then divided into private organisations and public organisations. Also, these companies range from small to medium size enterprises (maximum of 250 employees) and bigger organisations. So, these companies were carefully selected by the University of Twente in cooperation with NEVI. Next to that, the contact persons were selected based upon their function within the company, mostly active within the purchasing department. In table 1 an overview of the interviewed companies can be seen. Also, information is given about the type of industry the companies are active in. After the interviews, there was also a conference at the University of Twente where the participants were invited. During this conference there was a workshop in the form of a world café and focus groups to talk more about the subject.

**Table 4.** Interview organisations list

<b>No.</b>	<b>Industry</b>	<b>Sector</b>	<b>Size (employees)</b>	<b>Revenue (EU)</b>
1	<i>Private</i>	Financial services	240	<i>169,6 million</i>
2	<i>Private</i>	<i>Company education and training</i>	-	-
3	<i>Private</i>	Wholesaling and brokerage	60	<i>13 million</i>
4	<i>Private</i>	<i>Industrial solutions</i>	437	<i>235,6 million</i>
5	<i>Private</i>	<i>Company education and training</i>	2	-
6	<i>Private</i>	Wholesaling and brokerage	40	<i>10 million</i>
7	<i>Private</i>	<i>Healthcare and life stock management</i>	1000	<i>180 million</i>
8	<i>Private</i>	Aviation	110	<i>50 million</i>
9	<i>Public</i>	<i>Defence material</i>	-	-
10	<i>Public</i>	<i>Nature and landscape</i>	144	<i>33,4 million</i>
11	<i>Public</i>	Railway	3900	<i>8 billion</i>
12	<i>Public</i>	<i>Waste and energy</i>	250	<i>15 million</i>
13	<i>Public</i>	<i>IT supplies</i>	-	-
14	<i>Public</i>	<i>Government services</i>	2100	-
15	<i>Health/Private</i>	Healthcare	450	<i>30,8 million</i>
16	<i>Private</i>	<i>Technical wholesale</i>	140000	<i>35 billion</i>
17	<i>Private</i>	<i>Subcontracting and semi-finished products sectors</i>	15000	<i>4,7 billion</i>
18	<i>Private</i>	Iron	180	-
19	<i>Private</i>	Oil and gas	101	-
20	<i>Private</i>	construction	450	<i>100 million</i>
21	<i>Private</i>	<i>Metalworking</i>	32	-
22	<i>Private</i>	<i>Metalworking</i>	150	<i>17 million</i>
23	<i>Private</i>	<i>Metalworking</i>	-	<i>28 million</i>
24	<i>Private</i>	<i>Technical wholesale</i>	350	<i>50 million</i>
25	<i>Private</i>	automotive	450	<i>175 million</i>

26	<i>Private</i>	Metalworking	-	-
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After the companies were initially contacted by NEVI kring Oost and University of Twente and approval by the ethics committee, the contact persons of the companies were invited via e-mail for a 30-minutes online interview. In these e-mails the persons were informed about the research and the interview. Consequently, interviews were planned according to the contact person's wishes.

### 3.3 Semi-structured interview: a mix of structured and unstructured to gather as much data as possible

In this part of the paper several theories from literature are explained about interviews. Which types of interviews there are, how to structure an interview, preparing and conducting one. I.e. there are three types of interviews are stated in the literature: unstructured, semi-structured and structured (Stuckey, 2013). According to Seidman (2012) as stated in Alsaawi (2014) interviewing can be seen as "a basic mode of inquiry with an interest in other individuals' stories because they are of worth" (p. 150). Interviewing can be done in three different ways as stated above. Structured interviews are a controlled manner in obtaining data from interviewees. It can be seen as a pre-planned interview where a researcher draws up the interview questions before doing the interview. According to Bryman (2008) as stated in Alsaawi (2014) Such a format is an effective way to keep the interview tightly focused on the target topic (Bryman, 2008). However, the weakness of this type of interviewing is that it is very narrow and it lacks richness and in-depth data, also the variation between responses is low or there no variation at all. Therefore, also the flexibility for the interviewer is very low due to the fact that it is not able to go more in-depth. Unstructured interviews however, are full of flexibility which is like a conversation and the interviewee has the possibility to answer the way he wants (Bryman, 2008). Finally, semi-structured interviews are a mix of both structured and unstructured interviews. Here, there is a interview scheme created with questions, however, some questions might arise during the conversation and then asked accordingly. For this research, semi-structured interviews are conducted.

First of all, the questions in these interviews are based upon the seven step research model. In the beginning the interviewees will be asked more about the company they are active in, who their customers are and who their suppliers are. This is done to get a better view on how complex or not the situation already is and to get some sort of introduction in the interview. Consequently it will be asked how they are affected by COVID19, this is done for the first steps in the seven step approach; problem identification. After that, it will be asked what strategy they proposed, this is done to test whether the synchronicity model is really used in practice, but also to get the following step in the research model; problem approach and problem analysis. But also, to get to know more about the different solutions and solution decisions. Finally it is asked how the companies are looking back on how they coped with COVID-19, to get to know more about the last steps of the research model; implementation and evaluation. The interview protocol can be found in Appendix A .

### 3.4 After the interviews, the data is transcribed, coded and analysed

All the interviews were recorded on phone in correspondence and with consent of the interviewee. After all interviews were done, these recordings were transcribed. There are many types of transcribing, coding and analysing the interviews. Therefore, this part of the paper will explain more about this process with the help of literature.

There are two types of transcribing; naturalised and de-naturalised (Oliver, Serovich

and Mason, 2005). Naturalised is when the audio is directly translated to paper without any adaptations; everything must be written down. De-naturalised transcribing is more focused purely on the information told. So only the highlights and most important information is written down. For this research, the second one will be used in order to eliminate unnecessary things. After the audio is transcribed, the data will be coded. There are three stages of coding; open coding, axial coding and selective coding (Blair, 2015). In the first step, the text is labelled. After that, the labels will be connected to each other after which categories will be assigned to the labels. There is also a difference in inductive coding and deductive coding. With deductive coding, coding is done based on existing literature and with inductive a theory is created after coding. For this research inductive coding is used because of the theoretical framework proposed in the beginning. Finally, the software used for transcribing is AmberScript. When started coding, firstly the organisations characteristics were looked for, this in order to get a bit of an overview what type of organisations it is, what it sells and what it purchases. After that, it is looked for how the organisation is affected. After the negative effects of COVID19 were coded, the strategies were looked for. So, what the organisations did in order to cope with these effects. These three aspects; organisational characteristics, how they are affected and how they coped were the three main headlines where was searched for. After that, these three aspects were subdivided into different codes. In total, four groups of categories were created which were then divided into in total 21 sub-categories as can be seen below

**Table 5.** Codebook

<b>Category</b>	<b>Sub-category</b>
Effect COVID19	Decreasing demand
	Decreasing turnover
	Decreasing output
	Working from home
	Low occupancy
Strategies pursued	Alternatives
	Buffering
	Cancelling non-critical projects
	Checking contracts
	Communication
	Corona team
	Cooperation in Supply Chain
	Dual sourcing
	Preferred customer
Organization characteristics	Products/services they offer/produce/purchase
	Size
	Number of suppliers
	Type of organization

Reasons why coping well	Short lines with ministry
	Preferred customer
	Industry active in
	Risk management

## 4 Results

This part of the paper will show the results of the research. First of all, a general overview will be given on how the different companies are affected by COVID19, so more on how the companies are overall affected. After that, there will be a section on how these companies reacted in terms of strategy and also here; how the companies generally reacted in terms of strategy overall. When this is clearly summarized, this part of the paper will then focus more on the theoretical parts of the paper. So how the companies are affected and how they reacted will be connected to the synchronicity management model in order to see whether there were similarities or differences. So in other words, there is taken a look on how the companies are affected in the sense of operative, financial, strategic and environment terms. As it is also the same for their strategies. After that, there will be a cross-case analysis made in order to test whether the previous mentioned hypotheses are true. So there will be a comparison made between different factors; public vs. private companies, local vs. remote sourcing, preferred customer, risk management and product related factors. After this cross-case analysis is made and the hypotheses are tested, an overview will be given of the future after COVID19; in other words how procurement will or will not change due to this crisis.

### 4.1 COVID19 has led to the fact that many companies are negatively affected on different areas

How the studied companies are affected by COVID19 was somewhat varying, as it for instance very depended on what segments they are active in; as an example some companies saw chances due to the crisis and other companies led several losses. But overall, it could be seen that most of the companies survived and came, up till now, relatively unharmed out of the crisis. With an emphasis on relatively, as many companies had their difficulties during this time. This part of the paper tries to give insight on how the different companies are affected in general and how it is different in the private and public sector. So, it first starts with a comparison on how public and private organisations are affected overall. After that, the section digs deeper into the specific consequences COVID19 has on all of the organisations and its procurement processes. After the consequences, there will be a comparison made between different organisations, different examples why some organization is affected differently from the other one. This is done in order to give a better view on what is meant with it. With the help of these examples, it is easier to understand what causes these differences. Also, an explanation will be given why one organization is less affected than the other one. So first of all, there were of course many negative consequences, therefore, we will start by giving an overview of the negative consequences for some companies. In order to give more structure and clarity, the effects of the pandemic are being divided into supply chain-related and production-related effects. Furthermore, in this section, proposition 1 and 2 are being discussed.

### 4.1.1 Comparing public and private organisations: no significant difference could be seen in the way they are affected

In order to give an answer to the question if **proposition 1**: “*Private organisations encounter more financial problems than public organisations during COVID19*” is supported, we take a look at the difference between public and private organisations. There cannot specifically be seen that the public organisations encountered less problems during COVID19 compared to private organisations. Mostly the public organisations are affected somewhat to the same extent as private organisations with here and there some exceptions. So in other words, overall it could not be clearly seen throughout the research that public organisations were less affected by COVID19.

Proposition	Citation	Interviewee
Public organisations are less affected by COVID19 than private organisations	“That is the advantage that we are in the vital sector, that we are an energy producer and that lines with the ministry are short and the Corona team within ... was on top of it. And we got that information very quickly”	12*, 11, 10, 10

However, there were only some aspects in which public organisations maybe have had an advantage above private ones which will now be explained. First of all, one public organisation which produces energy for the cities and collects waste and is thus active in a so called vital sector, what that means is that it is very important that they remain in business. Therefore, they have very short lines with the Dutch ministry which has led to the fact that they get information very fast and can also act very fast accordingly. So, this could definitely be seen that the public organisations had more and closer contact with the ministry compared to private organisations. This has led to the fact that these organisations were earlier informed than the private ones and therefore also were better prepared for what was coming. However, this was mostly only about the new COVID19 measures, so in that sense you could question in how far this has had an advantage for these organisations in terms of how they are affected. Next to these shorter lines, some public organisations get funding from the government which also can be seen as an advantage compared to private organisations who do not. For instance one organisation who provides and carries out projects for all provinces to promote nature and for that they receive subsidies. Another public organisation has also received support from the government and they made use of schemes that have made it possible. However, these financial supports are not too big, so it helps them somewhat but some public organisations have unless that led several losses. So therefore, it could be concluded, that public organisations have had some advantages over private organisations during the crisis; however, these advantages were not high enough to see a difference in the extent to which both type of organisations were affected.

Therefore, it can be concluded that **proposition 1**: “*Private organisations encounter more financial problems than public organisations during COVID19*” is not completely supported.

Now it is clear how the organisations are affected, the following part of the paper will focus on what organisations did in terms of strategies.

#### 4.1.2 When COVID19 hit, many organizations encountered negative supply-chain related effects

What throughout the research definitely can be seen is that there was a significant decrease in demand. Many companies saw that on their demand side, orders were declining when they were asked how their organization was affected. This is due to the fact that some companies' customers had to close their doors. One interviewee active in an organisation providing electronic payment services stated that when looking back they could definitely conclude that they were affected, this was also mainly due to the fact that many of their customers had to close their doors in the month of March (Interviewee 1). Another interviewee (Interviewee 4) working for an organisation providing clean drinking water supplies said that their organizations was hit and mostly on the sales side as they saw a decrease in their incoming orders. But also as one interviewee (interviewee 7) producing tools for life stock management stated that the demand somewhat collapsed when everything went in lockdown. So, this decrease in demand has also to do with the fact that the lockdown was being implemented. What this decrease in demand also created was that some companies had more products coming towards them in the supply chain than that they really sold, so they had to try and push out their supplies. This interviewee 7 stated that demand completely collapsed due to the fact that everything closed and certain business units fell. This has led to the fact that some projects were suspended and what they saw was that they had more materials in the supply chain that came their way than they actually needed. So it was for them more like pushing out the materials than not being able to get it in.

So, the above already introduces a next supply-chain related problem coming from COVID19: scarcity. Scarcity is the next consequence many companies had to deal with. It could definitely be seen, mainly at companies with long and complicated supply chains, that there were developing some bottlenecks. Especially when second and third tier suppliers could not deliver. One interviewee (Interviewee 11) active in the railway industry stated namely that the supply chain, especially those with second and third tier suppliers in Asia, are drying up, so their supplier wanted to deliver, however, their suppliers could not. But also another example, one company needed to arrange the infrastructure to enable their employees to work from home. So this has led to the fact that their demand for electronic devices like laptops, tablets, webcams were rising sky high. However, in times of COVID19, everyone has to work from home. So, this led to the fact that there was a scarcity in electronic devices. This again already introduces a next supply chain-related problem; namely for the companies with long and complicated supply chains with second and third tier suppliers in Asia.

First of all, it could be seen that transportation costs and time were rising sky high which impacted many companies. One interviewee stated that their logistics had some problems because they got their products from Asia and the transport costs are currently really high due to the fact that there are few air movements from Asia. Consequently they decided to leave their materials there and fly it over to Europe at a later time (Interviewee 4). Another interviewee also stated that at the moment it is not attractive for European companies to get materials from China due to high costs and long lead times (Interviewee 2). As an example at one organisation active in the aviation industry it could be seen that



weekly flights from LA to Amsterdam went instead of Friday on Tuesday or even a week later, so that kind of delays could be definitely seen (Interviewee 8). So the information above already indicate what is going on with transportation costs and times. At this moment transportation is just so expensive and has too many delays, companies are searching for other ways to get their supplies here in time. Therefore, this might go to a shift that companies might source more locally which will be investigated further up in this paper. This is also stated by interviewee 23, active in the oil and gas industry that it is expected that more organisations will source more locally in the future.

**Table 6.** Internal effects of COVID19

Effects of COVID19		Citations	Interviewee
Internal (production)	Decreasing turnovers	“We are definitely very negatively affected, our turnover decreased with 90 per cent in a few days’ time”	11*, 8
	Decreasing output	“Of course, we also generated less output because we had to ensure 1,5 metres at the line. So we do not have ten but five employees at the line”.	3*
	Work from home	“Maybe it took some getting used to now and then, because a European tender suddenly had to go through Teams. Or we wanted to hold a market consultation, normally we invite parties on location. This now also had to be done via Teams. That took some getting used to. But at the bottom of the line, it all continues as usual.”	14*, 10

So if we take a look at **proposition 2**: “Organisations who do local sourcing encounter less problems than companies who do remote sourcing due to higher transportation times and cost” it can be seen that organisations who do remote sourcing encounter more problems than organisations who do local sourcing. Organisations who get their supplies remotely; think of Asia, saw many troubles coming towards them. First of all, because there was a lockdown in China way earlier than here, the factories there closed down which caused organisations to not having their suppliers here. Next to that, due to the lesser air trafficking, the transportation costs rose sky high. Also besides high transportation costs, many organisations suffered from longer lead times and supply chain interruptions. Therefore, it can be concluded that organisations who source their supplies remotely, encounter more problems during COVID19 than organisations who source locally. Which can be seen as enough evidence that also this proposition is supported.

Proposition	Citation	Interviewee
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Organisations who perform remote sourcing seem to have more trouble and face more risks compared to local sourcing	Then out of Europe, we have not much trouble. There are a few bodies which were delayed from China, but we have received them now. These were special great steel bodies which we were waiting a long time for. And because of Corona, they were delayed	23*, 22, 29
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So, this section of the paper namely highlighted the external effects COVID19 has on the organizations related to their supply chain. First of all it could be seen that due to the fact that many customers had to close their doors, demands were declining. These declining demands in turn led to the fact that many organisations lost big parts of their turnovers. Another supply chain related factor was the scarcity; supply chains are drying up, especially those longer complicated ones with second and third tier suppliers in Asia. And finally, this brings us to the last external supply chain related effects regarding production in Asia: higher transportation costs, longer lead times and delays.

#### 4.1.3 Next to supply-chain related effects, COVID19 has had an impact on organisations internally

Because of the fact that orders were declining also the turnover of many organizations were declining as explained also in the previous section. For instance from one interviewee from the railway industry it became very clear that they were pretty hard affected as their turnover decreased with 90 per cent in a few days' time (Interviewee 11). Next to the fact that they lost 90 per cent of their turnover in a few days, also the future does not look bright for the organization as they will, in the next two years, lose 5 billion on turnover. Another organization, active in the aviation industry also saw a reduction in turnover and have gone to 40-60 percent of their sales which has seriously affected the organization. And due to the fact that demand and thus turnover was declining, in most cases also production of these companies was declining which has led to the fact that many people lost their jobs because these companies had to make up for the losses suffered. And making up for these losses one interviewee (Interviewee 22) stated that it will be mainly realised by skimming off personnel. In that sense, the organisation will cut around 2300 jobs in the next three or four years. Next to that one interviewee of another organization stated that people with a contract of one year were not extended, so all these people had to go out (Interviewee 8).

However, there were some companies who kept on running with their production as usual. Interviewee 4 stated namely that their production capacity remained running on 90%. Another interviewee stated also that their factories remained open and running as usual, non-stop. However, it was done with minimum occupancy (Interviewee 17). So because of the COVID19 measures, the workforce was less, because they had to work on 1,5 metres and with less people; therefore, many companies had difficulties with keeping production running. For instance according to interviewee 3 they generated less output because they had to ensure 1,5 metres at the line. So instead of ten, they had 5 employees at the line. So these

COVID19 measures affected some companies significantly and led to the fact that they had the challenge to remain up and running with a smaller workforce. But these measures did not only affect the production of these companies themselves, but also from their suppliers and therefore sometimes they had to do with scarcity. As one interviewee (Interviewee 7) mentioned that they sometimes had some problems with some materials as the factories of their suppliers' suppliers had to run at half capacity.

So the above already connects to the following consequence of COVID19: working from home. Many companies are highly affected due to this measure, both positive as negative. Positively, as it takes less time in terms of travelling; people can just open their laptops and discuss with each other. However, on the other hand, relationship building and remaining good relationships with suppliers and co-workers is difficult as it is less personal via online platforms like MS teams. But, this was also depending on the organization; some organizations were already doing that a lot, working from home. As one interviewee (Interviewee 10) stated that for their purchasing department it was not a problems, as the people in here live and work throughout the country, so they are already used to working remotely. So the work there continued as usual. But overall, many organizations had to get used to this new form of working. As one interviewee (Interviewee 14) stated that from one day on to the other they had to work from home and the facilities always were there to work from anywhere; everybody has a laptop and can log in everywhere via their smartphones. However, when also doing that on a daily basis was still a bit "awkward" and searching for most people. Next to that, at some organisations they hold market consultations and normally they invite parties over on location, however, this had now to be done via MS Teams so it took some getting used to. For instance at one organisation, a European tender suddenly had to go through via Teams which was a bit odd according to the Interviewee (Interviewee 14). So, generally, it did not bring such big problems unless the fact that it was just a bit 'getting used to it'. But as said before, it had an impact on relationship management. As one interviewee stated that they had done too little in relation to relationship management as in his opinion they are currently too little in contact with suppliers. He gave as an example, normally, when he is physically at a supplier, they can talk about other things like new developments etc. which is missing now.

So, as said in the beginning of this chapter, how the companies were affected varied somewhat. Most of the companies were affected overall, however, some companies did not encounter any difficulties during the crisis or whatsoever. It could be seen that there were also some positive results as one interviewee stated that he/she was positively surprised that most of the work just continued. As also another Interviewee stated that during Corona they did not have to deal with a supplier who could not deliver. So all in all, it can be seen that many companies encountered many negative consequences from COVID19 as some encountered less negative effects, however, all the companies coped well, in the sense that they still exist and did not have to close their doors. So it can be seen that all companies pursued a strategy that worked out for them.

**Table 7.** External effects of COVID19

Effects of COVID19		Citations	Interviewee
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External (supply-chain)	Reduction in demand	“It was more on the demand side that everyone was like, that everything was closed indeed and that certain business units fell, so the demand just completely collapsed. So projects did not go through, so then you actually had more, you actually had more materials in the supply chain that came your way than you actually needed before. It was more like pushing out than not being able to get things in.”	7*, 1, 4
	Scarcities	“Because those who are those second tier suppliers, who indeed come from Asia, the supply chain is drying up there, so our supplier wanted to deliver, but yes, their suppliers who fell silent and that is bothering us”	11*, 13
	Increased transportation costs and times	“Logistics is a thing, because we do get products from Asia, however, the transport is currently so expensive because there are few air movements from Asia. We then decided to leave the stuff there and then bring it to Europe at a later time”	4*, 8

#### 4.2 In order to cope with the negative consequences of COVID19, many companies pursued often similar but sometimes different strategies

So this part of the paper will tell more about how the different organizations reacted on COVID19 in terms of strategy; strategy in general and for procurement in specific. As can be seen in the previous part, organizations are all differently affected, however, there are many similarities. This is the same for how the organizations reacted, they all reacted a bit different, however in broad outlines there are several strategies that came back several times. Therefore, this part of the paper will outline these different strategies and will explain them a bit more.



**Figure 9.** Overview of strategies discussed

#### 4.2.1 Communication, communication and communication

First of all, it could very clearly be seen that communication and collaboration within the supply chain but also cross-functionally within the organization was the most important and logical response. First reaction of most procurement managers was communication. This could also be seen by a reaction of Interviewee 17 when was asked for recommendations to other organizations: “Yes, communication by far on number 1 with all your stakeholders, both your suppliers and your customers. Actually, maybe you should put that on one, two and three”. Throughout all the interviews it became clear that communication is key in these sort of situations. As normally is communicated once in a week or in two weeks, now it was twice or three times a week. But not only with suppliers, also as said before, cross-functionally: more cross-functional meetings are being planned to keep each other informed. For instance one interviewee stated that they have eight people reporting and making sure that they schedule a call twice a week to talk to each other more often in these sorts of situations. In order to facilitate more communication cross-functionally, a few organisations established a Corona crisis team. This team generally informs the whole company with the latest updates regarding COVID19. According to Interviewee X there was a lot of uncertainty at the beginning, therefore they set up a crisis team for COVID. In these crisis teams, according to Interviewee X, everyone meets each other every day and also where all the measures are discussed. So the aim was to also intensively ask the suppliers if they had problems and what this would mean for them. But also to be pro-active and not wait till the suppliers comes to you with a problem. As one interviewee (Interviewee 2) working as a purchasing professional providing support to organizations who need to professionalize their purchasing function very clearly stated: “know where your products come from and interact with your suppliers and let them approach you proactively instead of just chasing you”. Plus the fact that many companies stated that the aim is to collaborate with each other, everyone has the same problems. Therefore, they tried to make something of it together. So, next to

communication, collaboration was also an important aspect of how companies coped with COVID19. It became clear throughout the interviews that organizations within the supply chain should help each other and understanding each other's situations: mutual respect for each other's situation and, above all, enter into a conversation to look for a solution. Next to this, contract management became way more important. Many organisations reacted on the crisis by directly assessing all the contracts they have with suppliers. For instance according to Interviewee 17, they made a printout of current agreements and contracts with the larger suppliers to see what it going on there and if there needs to be some more attention etc. So, to summarize this a bit; the main take-away is communication and not just communication, but with all the stakeholders which are suppliers, customers and internally. Next to that, many organisations gave attention to relationship management and tried to cooperatively come to the best solution for all parties. Next to that, it is important to look at the contracts, which ones need some attentions and which do not. All the above is done in the light of flexibility and to act quickly, which is in the end also, next to communication the best strategy; act quickly, be flexible, agile and do not wait till the problem hits you. Try to look forward is the lesson.

#### 4.2.2 Because of scarcities and in order to secure supplies, many organisations tried to buffer stock

As already explained in the previous part, many organisations encountered scarcities due to the long and complicated supply chains as these are drying up further up the chain. Furthermore, they encountered longer transportation times and cost. But also some companies saw a high demand for instance for electronic devices which led to the fact that they had to fight for supplies. So, what happens after is that there are many scarcities in the market. What many organisations did in order to hedge for these problems; they enlarged their stock by buffering goods in order to secure their supplies. As one interviewee (Interviewee 12) remarked that because of the fact that they increased certain stock, they secured supplies leading to the fact that they did not come into trouble. So this already explains that buffering can be a good strategy in order to hedge for problems like described above. Some organisations also tried to stock more material locally, so they already tried to get their material here. One Interviewee for instance stated that they started hoarding extra material from certain raw materials to at least be sure to have sufficient materials. Next to that they deposited some material here in the region. What some organisations also did was not specifically buffering or hoarding, but trying to bring orders forward. This could be seen in the reaction of organisation 4 as the interviewee stated that they tried to bring orders forward, that when there comes a lockdown, they have their stock locally. So, in order to hedge for risks with regard to scarcity, supply chain drought and long transportation times organisations might use the buffer strategy. In this way stock is increased which leads to the fact that supplies can be secured.

#### 4.2.3 In response of supply insecurity, many organisations searched for alternatives and multiple sourcing got more attention

This part of the paper connects the previous part as this also has a bit to do with scarcity and supply chain drought or supply insecurity in other words. First of all what could be seen, next to buffering, was searching for alternative also one of the popular strategies. Organisation 12 has suppliers in Italy which has led to the fact that it was challenging to get

the supplies from there. Therefore, according to Interviewee 12, alternatives have been sought. For instance according to the same interviewee, they had a project which had to be delivered, however, there was a bottleneck with a number of parts that had to come from Italy. What they have done is looking for alternatives and these alternatives then came from France. So, according to these problems multiple sourcing got more under the attention as it could be a proper way to hedge for these risks and have some alternatives. As one interviewee stated that in many cases they often contracted three parties which has helped them a lot throughout the crisis. So this also implies that not depending on one supplier and contracting several suppliers is a good way to hedge for the risks. But also the collaboration with suppliers came back in this strategy; many organisations tried to look for alternatives together with their suppliers: According to interviewee 12 it is a combination of the fact that they will look for alternatives in combination with a supplier who has to realize a project. What also could be seen in the research was that some organisations depended too much on one supplier. Namely one interviewee said that that has been a lesson and that the spreading of risk by having more suppliers they should have done more. So, in the sense that they had to spread their risks more by not relying on one supplier and try to more multiple source. So, in order to hedge better against supply insecurities, organisations try to look for alternatives. But it has been also an eye opener for some organisations to spread their supply risk by putting more effort in multiple sourcing and looking for more suppliers.

#### 4.2.4 Supply chain visibility: a hot item as many organisations tried to get higher visibility in search for potential bottlenecks

As already explained in the previous parts, supply risks coincides with long and complicated supply chains. What the biggest problem was with most organisations, that they do not have enough supply chain visibility. They knew who their first tier suppliers were, but they were not aware of what happened further up the stream. In combination with COVID19 this might have a devastating effect and therefore a good strategy is to get more supply chain visibility. So be aware of who your second or maybe also third tier suppliers are; be aware of your supply chain, where your product comes from was the main message of many procurement managers. According to one interviewee (Interviewee 13) it is an important aspect as it is necessary to better map out the problems related to the chain. Next to that another interviewee (Interviewee 3) stated that organisations need to be more aware of the supply chain, understand where the product comes from and what impact that has on the whole supply chain and the company. So it is very important, and becomes even more important to be more aware of the supply chain. In order to support these theories, an example can be given by one organisation interviewed. This organisation (8) builds components for the aviation industry. And what can be seen in this industry, is that the supply chain is highly visible. For instance, this organisation can already see what Airbus and Boeing are going to produce in one year as they have a system in which they send it to all of their suppliers. Therefore, this organisation directly knew what they need and how much they needed so they could secure it.

“We know what Airbus and Boeing will do. You are not dependent on them, you just look at their website and they have all the forecasts there: we know exactly, for corona; In January 2020, we actually knew exactly what to produce in January 2025. A bit exaggerated, but that is all fixed. So they build 300 every year and you can of course adapt the entire chain to that.”

This is a great example of a strategy in hedging for such risks. Try to make the supply chain more visible and transparent and be more aware of the products and where they come from. This implies also the previous mentioned strategy of communication and collaboration; when all the parties in the supply chain communicate and collaborate, the chain gets way more transparent, visible and flexible. So more organisations have to shake each other's hands and try to make the supply chain as efficient as possible; because in the end everybody will benefit of it.

#### 4.2.5 Because of the fact that many organisations saw a decline in turnover, non-critical projects and investments were suspended

As stated earlier on in this chapter, many organisations saw a setback in turnover. This has led to the fact that many of these organisations took their financials into consideration, which is very logic indeed. The strategy most of them pursued was to look if there were some critical projects and some less critical projects to consequently postpone the less critical projects to save money. Next to that, non-critical investments were also postponed to give the organisation some financial backup to absorb the bumps of COVID19. As the strategic purchaser of company X said that a different strategy was to indeed cancel current assignments towards all parties, who do not necessarily have to continue. What could be seen at a technical wholesaler was that they, because their turnover was declining, looked at their expenditure with the CAPEX tool. This is about the capital expenditure and with that they tried to minimize their costs as their income was declining. As interviewee 16 stated that they used a revised regular drop through which holds means that you should not incur any costs with that reasoning, but should save costs and our parent company is actually now asking to apply the same formula in reverse. So if the turnover falls by ten, you have to save costs by five.

#### 4.2.6 Using risk management can be seen as a beneficial way in coping with COVID19

<b>Proposition</b>	<b>Citation</b>	<b>Interviewee</b>
Companies using supply chain risk management are better able to cope with COVID19	We do have certain tools to gain access to, for example, a good example is perhaps the risk indication. And in this way we can see daily where in the world lie potential risks.	4*, 26, 24, 18

Throughout the research it could be seen that not many companies have an extensive risk management system in place. So, what could be seen throughout the research was that only a few organisations used a risk management strategy. However, almost every organisation agreed upon the fact that risk management would be beneficial in these times and that they regret it to not be using some kind of risk management system. Next to that, the companies who used risk management could be seen that they definitely benefited from it. One interviewee working for the clean drinking water company (organisation 4) stated that they use a risk management system which maps all risks over the world, for instance a volcanic eruption on Indonesia. In this way they quickly knew there was a lockdown in China and due to the risk management system they could act very quickly. Next to that another interviewee 19 stated that they could quickly switch with their second and third tier suppliers



due to the risk management system which helped them very much in this situation. So if we look at **proposition 3**: “*organisations using risk management are way better prepared for the negative outcomes COVID19 has*” it can be seen that organisations who did use risk management, are very good prepared for the negative effects of COVID19. Next to that the organisations who did not use risk management, agreed upon the fact that it might have helped them in coping with their problems related to COVID19. So this is already enough evidence that the proposition is supported that organisations who use risk management are better able to cope with COVID19.

**Table 8.** Overview strategies pursued

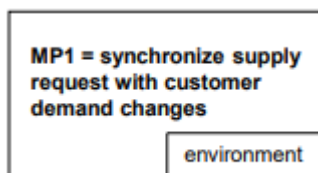
<b>Strategies pursued</b>		<b>Citations</b>	<b>Interviewee</b>
Internal (production)	Internal communication/crisis team	“We have set up a crisis team for COVID within CCV. In the first period there was still a lot of uncertainty, so we started to switch on a daily basis and drew up a COVID policy for all employees and also for the suppliers and the customer. Contacts with everyone, also to ensure that there are no risks at all.”	1*, 13, 10
	Suspending non-critical projects and investments	“Yes, exactly and a different strategy was indeed that we cancelled current assignments towards all parties, who do not necessarily have to continue”.	12
External (supply-chain)	Communication with suppliers	“Yes, communication by far on number 1 with all your stakeholders, both your suppliers and your customers. Actually, maybe you should put that on one, two and three”	17*, 4
	Buffering stock	“Like certain stock we have increased, in order to secure supplies. And I think that therefore we did not come into big trouble”.	12*, 4
	Alternatives and multiple sourcing	“We also have suppliers in Italy and that is, and that is of course a challenge to get that supplies. So alternatives have also been sought”	12
	Get higher visibility in search for potential bottlenecks	“Think organisations need to be more aware of the supply chain, understand where the product comes from, what	3*, 13

		impact that has. So that is very important to be more aware of the supply chain.”	
	Risk management	“Investing in risk management. I think that sometimes people forget how important that really is. Usually risk management does not yield very much. Many suppliers or many companies pay little attention to this. And now you realize how crucial it can be.”	4*, 1, 2, 7, 11, 13, 15

So this chapter of the paper merely described and shortly explained how different organisation reacted in terms of strategies to the negative consequences of COVID19. In headlines, many strategies coincided at the different organisations however in some cases also a bit different. The next step is to connect these strategies to the theory described earlier on in the paper, namely the synchronicity model. So the strategies used will be classified into environmental, operative, strategic and financial strategies.

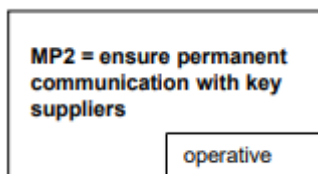
#### 4.3 It could be seen that many organisations used several strategies which can be classified into the proposed synchronicity model

So, as already explained a bit at the end of the previous part, this part of the paper will connect the results with the theory proposed in the theoretical framework. This is done by classifying the used strategies into four different types of strategies: environmental, operative, strategic and financial. So, in other words, the strategies mentioned above are now scaled; if they belong to environmental, operative, strategic or financial strategy. It can be seen throughout the interviews that operative strategies are mostly used, next comes environmental and strategic and financial are the least used ones. There are 29 citations coded with “operative strategy” in Atlas.ti, so this already imposes the widely usage of this strategy.

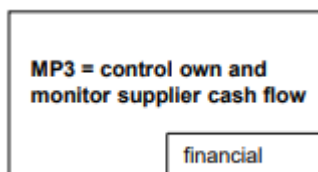


As can be seen in the figure above, the environmental strategy is about synchronizing supply request with customer demand changes. It could be seen that an effect of COVID19 is the decreasing demand of several organisations; therefore this strategy holds that organisations look at their demand and adjust it accordingly with their supply request. Many organisations pursued this strategy during this crisis. What many companies first did was constantly monitoring the incoming orders, by monitoring these, the organisations now how much they have to produce, how high their production capacity has to be and therefore also know how much they need with regard to supplies. So this was mainly the scope of the

strategy and how it actually was implemented. For instance at organisation 4, they quickly knew they had to run 90% of their production capacity, based on the incoming orders and thus also adjusted their supply request accordingly, or not. Another organisation saw their demands declining, that they had to adjust their production capacity to 40-50% leading to the fact that their supply request was half of what it used to be. Finally, another organisation 7, the purchasing department directly informs the production facility how much they have to produce and when they may start to produce. What they did, they saw their demands declining, and sent a forecast of several months with the changing supply request or in other words, production request. In this way they synchronize their supply request. But on the other side, at organisation 18, the demand was increasing, and what can be seen is that they tried to buy extra material. So, here also they tried to synchronize the demand change with their supply request.

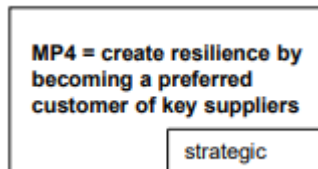


The next strategy is the operative one, the most widely used one and holds that organisations should ensure permanent communication with key suppliers. As stated in the beginning, this is by far the most used strategy. It is a bit the same as one of the previous sections about communication. The main take-away is that communication is key; to keep in touch with the suppliers to remain updated and be pro-actively in communication with the supplier. In this way, both parties know what they need and what is possible and what is not. So, therefore, ensuring this permanent communication is very important, maybe the most important aspect in this whole crisis and throughout the whole research. For instance, when one interviewee (17) was asked what his top three recommendations are for other organisations, he put communication on 1, 2 and 3. So this already implies how important it is to keep good communication. As this strategy is also explained in section 4.2.1, this part will not go deeper into it.



So the environmental and operative strategies were the most used ones throughout the crisis. It became clear that not many organisations had specific financial strategies, this also mainly comes by the fact that mostly people were interviewed who were active only in the purchasing department and did not had to do so much with finances. Nevertheless, throughout the research and interviews, sometimes financial aspects came to the point. What some organisations did was jointly with their suppliers looking at how they were standing financially. For instance interviewee 1 stated that they asked their suppliers, if they happen to have financial problems that they will help and support them so that they do not come into trouble. In this way, the organisation ensures that the supplier keeps running and supplying them, which is a good strategy. What other organisations did was asking the suppliers for

transparency; so asking them to provide insight into their cost and expenditure. So if there are problems, it can be tackled quickly. Next to that, some organisations helped their suppliers financially by providing them prepayments so that they could keep on running. So that was mostly the part of monitoring supplier cash flow. But next to monitoring the cash flow of the supplier, it was also important for most companies to control own cash flow. This was mostly done by just looking what came in and what went out financially wise. So if there was coming in less, projects or investments were suspended accordingly.



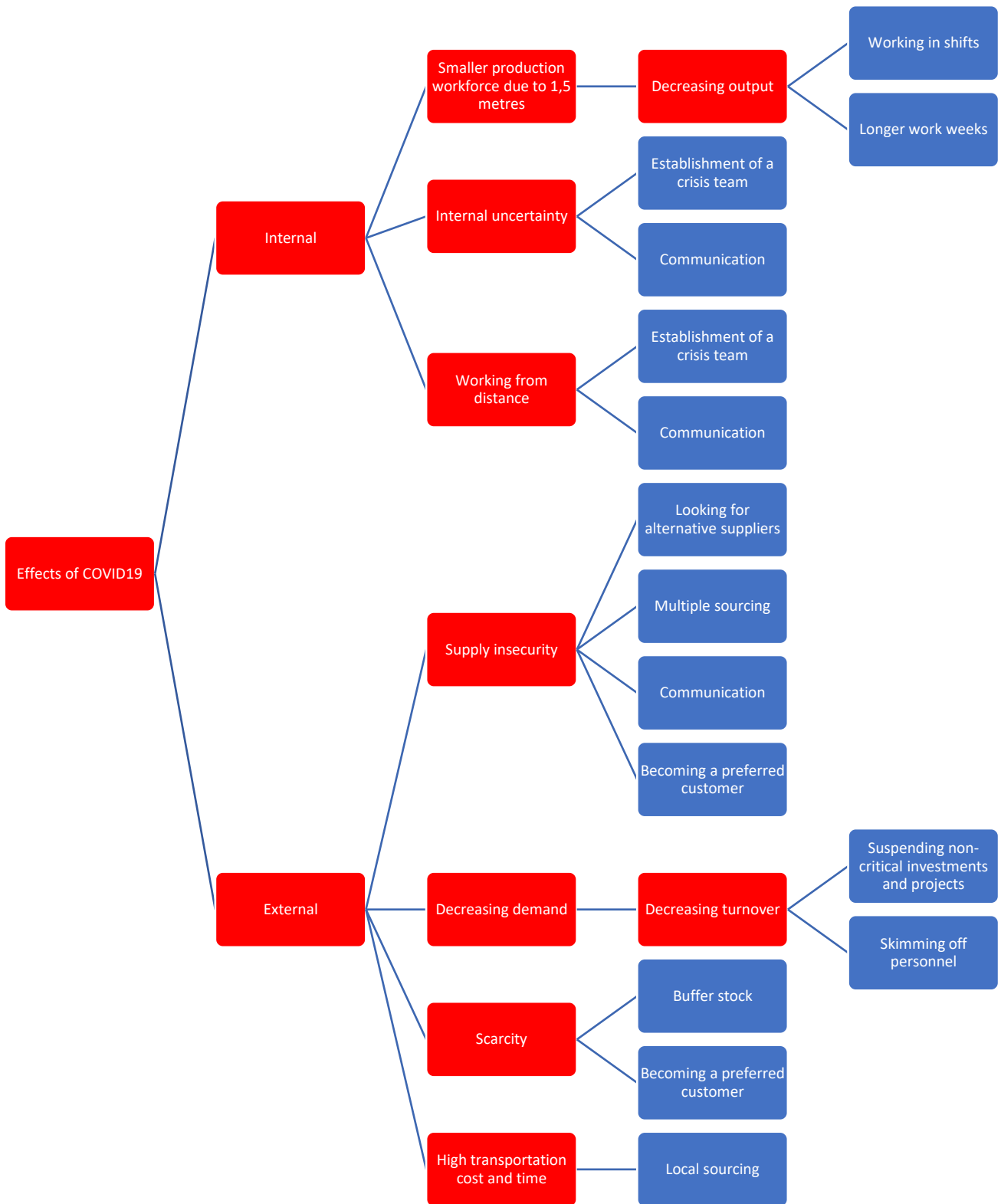
The organisations who are seen as preferred customers all agreed upon the fact that, due to this status, they were secured of supplies in these difficult times. On the other hand, the organisations who were not seen as a preferred customer, had to get in line for their supplies and wait. So, this indicated that becoming a preferred customer is a good strategy in order to hedge for risks like supply insecurity as the suppliers are willing to keep stock reserved for these organisations. So, in the end what definitely could be seen throughout the interviews, was that the companies who were seen as a preferred customer agreed that it is very beneficial. On the other hand, the organisations who were not, agreed that it is very problematic especially in times of crises like this. Also, many organisations agreed upon the fact that in the future they have to spend more time and energy in relationship building with their suppliers in order to become a preferred customer. In other words, the companies who have that preferred customer status are more likely to be supplied as first, especially in times of scarcities, as these suppliers like to keep their customer with them. Therefore, these organisations have a supply security in times like these. Next to that, they can be sure that the supplier always have a certain stock available for them and that the materials are in good condition and quality. So, in short, being a preferred customer comes with many benefits and when comparing it with the companies who do not have this status they are more likely to be able better to cope with risks coming from COVID19. So, proposition 4 that companies who have a preferred customer status are better able to cope with COVID19 is supported. Next to that, it could also definitely be seen that it is more likely that private companies have this status compared to public companies. This could be seen throughout the research, as only private companies from the sample were preferred customer; none of the preferred customers belonged to the group of public companies.

So, therefore, **proposition 4**: “Organisations with a preferred customer status are better able to cope with COVID19 and public companies are less likely to having this preferred treatment compared to private companies” is supported.

**Table 9.** Overview strategies pursued according to Synchronicity Model

<b>Strategies pursued</b>	<b>Citations</b>	<b>Interviewee</b>
Environmental	“In general, the demand had decreased a bit and then ultimately what that means for the production is that we, we ask that production parties are allowed to start producing only when they receive orders from us, so we send them a forecast for 12 months of ok. We expect to take this off.”	7*, 4, 23
Operative	“Communication is really key in these situations.”	2*, 4, 8, 13, 22, 12
Strategic	“That is the case, not everyone must say, but for some suppliers we are so interesting and large that they reserve materials for us. Or at least that we can 100 percent assume that the material they supply is good and that there is sufficient stock.”	9*, 7, 14, 11, 15
Financial	“And we have therefore clearly asked whether you can also indicate how you are dealing with the costs. And are you dealing with fixed costs with flexible costs and are you willing to provide insight into this, so that we can see what that.”	2*, 1, 7

**Figure 10.** Final model of effects and strategies  
 Source: Invented by author



Red = effects

Blue = strategies

#### 4.4 Results from the focus group overall match the results from the expert interviews

As already mentioned earlier in the paper, next to expert interviews, focus groups are used to talk about the different aspects of the subject and the synchronicity model in specific. Therefore, this section will provide the results from these focus groups to give a bit of a confirmation or extra dimensions of what is said in the expert interviews. These focus groups are divided into the four aspects of the synchronicity model by Schiele et al. (2020).

So when we look at the first aspect, environment, it is about synchronizing the supply request with customer demand changes. What came forward during this focus group, the first recommendation was to increase consultations between the purchasing department and the sales department. Next to that contact with suppliers has to be more frequent. Furthermore, what many organisations did was that they only sell when purchase orders are secured. Pre-COVID this was different. Finally, what came forward is that collective IT-systems should be established in order to enable the supplier to see the request more directly. So comparing this to the interviews, it can be seen that communication again comes back clearly. What a new dimension could be is the establishment of a shared IT-system between supplier and buyer.

The aspect discussed in the second focus group, operational, is about communication and remaining good contact with suppliers. What could be seen in this focus group is that there was more intensive contact with suppliers and that organisations tried to get a stronger bond with their suppliers. In order to do so, informal communication is the way to go. However, due to Corona, communication is more difficult due to complexity and distancing. So, this also agrees upon the interviews that communication is very important, however it can sometimes be difficult.

In the third focus group, in which they discussed the financial aspect i.e. how to control and monitor the financial cash flows of suppliers. First of all, it came again forward that good contact was essential. Next to that, it is recommended to look at project investments of suppliers. I.e. current project which are being delayed or suspended can indicate financial problems of the supplier. Also, a strategy could be horizontal transparency, so looking at the movement of other buyers who buy at the same supplier. When they switch to other suppliers, this can indicate financial problems of the supplier. Furthermore, suppliers can ask for defer of payment which also might indicate a financial bottleneck.

The fourth and final focus group discussed the fourth aspect; strategy. Which is about ensuring supplies by becoming a preferred customer. So how can organisations try and become a preferred customer. Co-operation is highly advised; in other words focus on relational contact. So cost is not important anymore, but about partnerships and going through developments together. Also, supplier selection is essential; look for a supplier that is even interesting for the buyer as the buyer for the supplier. Think about the Dutch Windmill aspect, so in essence organisations should consider how interesting they are to their suppliers. Another idea is to give more attention to contract management which is the same as in the expert interviews. Finally periodic meetings with suppliers is a good way to get a better relationship and training purchasers in a way to effectively communicate with suppliers.

**Table 10.** Recommendations focus groups

<b>Aspect model</b>	<b>synchronicity</b>	<b>Strategy</b>	<b>Recommendations</b>
Environment		Synchronising supply request with customer demand changes	Increase frequency of purchase-sale consultations
			Increase frequency and way of contact with supplier
			Adjust sales to current purchase orders
			Shared IT system for monitoring demand
			Framework contracts ensure the enforcement of purchase
Operational		Ensuring permanent contact with key suppliers	More intensive contact during Corona
			Try to get a deeper relationship with contact person
			Informal communication is essential
Financial		Controlling and monitoring supplier cash flow	Good contact
			Look at supplier's project investments
			Horizontal transparency: movement of other buyers relative to suppliers
Strategic		Create resilience by becoming a preferred customer	Collaboration: focus on relational contracting
			Active Contract Management
			Periodic calls
			Train buyers to have conversations



## 5 Discussion and conclusion

### 5.1 Conclusion: COVID19 has had a major impact on organisations which can lead to the fact that the way of procurement will change in the near future

The aim of this research was to find out how COVID19 has impacted private and public organisations in the Twente region, with a focus on the purchasing processes. I.e. how purchasing was affected and what these organisations did in order to cope with the crisis and how purchasing processes might have changed. In order to do so, qualitative research is done. What could be seen was that there was no significant difference in how private and public organisations are affected. Therefore, in this research **proposition 1**: *“Private organisations encounter more problems than public organisations during COVID19”* is not supported.

However, after all, it can be definitely concluded that overall COVID19 and the crisis it brought has had a major impact on all organisations, both public and private. The negative side effects of this crisis has led to the fact that many organisations faced very uncertain times. This uncertainty has had many causes. First of all, it was for organisations as a whole uncertain as nobody really saw this virus and its effects coming, which made it difficult as a whole to properly act upon as there were no clear plans yet for such a great pandemic. Furthermore many organisations face supply insecurity due to lockdowns all over the world. Economies came to a standstill which has led to the fact that demands were decreasing and turnovers were declining. Overtime, it became clear that supply chains were drying up further into the stream leading to strong scarcities and shortages making it difficult for organisations to try and keep on running. Next to that, due to the crisis, overseas transportation costs and times were rising sky high leading to many delays, this was also seen in literature (Cho & Kang, 2001). Next to that it could be seen that **proposition 2**: *“Organisations who do local sourcing encounter less problems than companies who do remote sourcing due to higher transportation times and cost”* is supported.

Also operationally, COVID19 has had an impact on organisations; people had to work from home, workforces had to be shrunk due to the COVID19 measures of 1,5 metres distancing. This has also led to the fact that organisations saw decreasing outputs. In their paper Sharma, Adhikary and Bikash Borah (2020) take a look at which impact COVID19 has on supply chains and came up with several challenges. A first challenge has to do with demand supply as demand uncertainty is one of the most called risks. What is interesting to see is that companies in some sectors had a decline in demand, some companies in other sectors had an increase in demand. Automobile and transportation sectors have seen a decline in demand, as a result of the fact that people need to stay at home. As where other sectors like the technology industry saw an incline in demand; people needed more laptops, tablets, headsets because they are now working more from home. If we compare this to the results of the research, exactly the same could be seen. According to Ivanov (2020) the effects of COVID-19 are long-term unpredictable disruption and disruptions in supply and demand. So this already is in accordance with the findings in the research, as many organisations saw unpredictable disruptions in supply and demand. However, according to Ivanov (2020) and Donthu and Gustafsson (2020), these disruptions have resulted in the fact that many companies went into bankruptcy causing disruptions in many sectors. This is somewhat different compared to the findings, as most organisations in the research are still

running and did not went into bankruptcy. Next to that, it can indeed be seen that labor supply is shrinking in times of COVID19, which was also concluded in their paper by Kahn, Lange and Wiczer (2020, p. 1). This is due to the fact that “roughly a quarter of the workforce has young children at home and may therefore be constrained from full-time work” (Kahn et al., 2020, p. 1). “Besides that, about one-fifth of the workforce is in an at risk group or lives with someone who is more likely to suffer severe consequences from COVID19” (Kahn et al., 2020, p. 1). If we compare this to the findings, it is somewhat different as it is not mentioned by any of the participants in the research. What could on the other hand be seen was that labor supply was somewhat shrinking due to the fact that there were a bit more sickness reports due to illness by COVID19.

Now it will be discussed what organisations did in order to hedge for these risks and to what extent they were different. However, there were many similarities and some patterns could be seen. First of all, communication was by far the most important aspect of coping with this crises. Many organisations agreed upon the fact that communication with all stakeholders is the key to try and cope with this crisis and mitigate the risks as much as possible. In order to hedge for supply insecurity and scarcities, many organisations buffered stock. Next to that many of them looked for alternative suppliers and lend more on multiple sourcing to spread the risks. Furthermore, supply chain visibility was another major important aspect. Many organisations came to the insight that it is very important to know your supply chain, know your product and know your suppliers and their suppliers. And finally, many companies had to take their financial parameters into account and tried to suspend non-critical investments and project in order to keep financial buffers to hedge against negative risks of the COVID19 crisis. In literature many is written about several strategies in order to hedge for those risks. These so called risk management systems came also back in this research and it could be seen that risk management can be very beneficial. Therefore also **proposition 3**: “*Organisations using (supply chain) risk management are better able to cope with COVID19*” is supported.

A strategy by Crick and Crick (2020) like ‘coopetition’ is about the combination of competition and cooperation which positively affects company performance. This strategy is somewhat different with the findings as most companies just used cooperation with their customers and suppliers, but not with their competitors. Another strategy proposed by Friday et al. (2021) is a more collaborative approach in order to maintain optimal inventory and mitigating stockout risks during a pandemic. This strategy involves collaborative planning, forecasting, replenishment but also SC collaborative risk management. Because of the fact that businesses more and more rely on each other, relationship building is very important. In stable environments and situations, these relationships are merely focussed around efficiency and profitability, however, during more unstable situations like with a pandemic, Obal and Gao (2020) propose that “firms should consider re-evaluating their existing relationships based on criteria that are uniquely appropriate for such an unstable environment” (p. 247). So, this could also be seen as a strategy; re-evaluating the existing relationships based on what is really happening during such a uncertain period of time like in a pandemic. So if we compare this with the findings, it definitely coincides, as almost all companies agreed upon the fact that collaboration and communication is the most important aspect. Next to that, it is seen that many organisations try to re-evaluate and re-establish their relationships with suppliers.

If we compare the findings with the synchronicity model strategy proposed by Schiele et al. (2020), it can be seen that many similarities can be seen. The first aspect, the

environmental strategy, came back at many organisations as most of them synchronized customer demand with supply request. For the operative part, it holds the same; all organisations agreed upon the fact that they communicate now more than ever with all stakeholders. For the financial part, it was somewhat less; however, many organisations had to take their cashflows into consideration and adjusted their expenses accordingly in the form of suspending non-critical investments and projects. Finally, the strategic part about preferred customer also came back at some organisations as they were seen as one by their suppliers and therefore had benefits like preferential treatment and resource allocation. Next to that, it could be seen that public organisations are less likely to have this preferential treatment and therefore also **proposition 4**: “*Organisations with a preferred customer status are better able to cope with COVID19 and public companies are less likely to having this preferred treatment compared to private companies*” is supported.

All this has led to the way that procurement will change in the future and that this crisis has been an eye opener for many organisations. Relationship building with suppliers is becoming way more important, next to contract management. This relationship building will further be improved by trying to become a preferred customer as it is increasingly important to gain such a status. Furthermore, organisations will source more locally and multiple sourcing will be preferred. Also there will come a more focus on quality instead of costs. Risk management will be higher on the agenda of all organisations. Also, the way of working will definitely change as working from distance seemed very efficient.

## 5.2 Practical implications: a pandemic like this can never be expected or predicted, however, organisations can organize their procurement and supply chains better to cope with negative effects

So, this research merely looked at how organisations are affected by COVID19 and what they did in order to cope with the negative effects that come with it. In the end, it is important for these organisations to learn from their faults in order to be better prepared when a next crisis will occur. In the end, a crisis coming from such a pandemic can never be expected or predicted which leads to very uncertain times. Therefore, it is hard to have a specific emergency plan in place as there are some aspects which just cannot be predicted for. However, there are several things organisations can do in order to be better prepared. This part of the paper will dig deeper into the different aspects organisations have to take into account when another pandemic will occur.

First of all, it is very important for all organisations to have the contracts right, down to the last detail. So, evaluate and re-evaluate all the contracts with all suppliers, in this way many securities can be built in. Next to contract management, supplier relationship management is very important; evaluate, establish and re-evaluating all relationships with all suppliers. This is due to the fact that almost all organisations saw that good relationship with suppliers is a pre in order to cope well with such crises. This is also in accordance with the literature, as Crick and Crick (2020) and Friday (2021) emphasize that cooperation and relationship building is very important. Next to that establishing and maintaining strong relationships will ensure essential business operations (Jap & Anderson, 2007; Palmatier, Dant, Grewal, & Evans, 2006; Wilson, 1995, as stated in Obal & Gao, 2020). When having relationships in order, it is also important to become a preferred customer to all of the critical suppliers as also proposed by Schiele et al. (2020). When becoming a preferred customer, organisations can get preferential treatment and resource allocation which hedges against

stockouts and scarcities in times of crises. What is less covered in literature but is found in this research is that organisations also have to more rely on multiple sourcing their critical products. In this way they build in securities when one supplier cannot deliver the critical product. Next to that, in the coming years, it is better for organisations to source their products more locally. As it can be seen, in a pandemic and crisis like this, organisations who source their products remotely, just come more into trouble. When sourcing locally, the risks are lower when in a pandemic. Also, the supply chain becomes shorter and less complicated. This brings us to the next step organisations have to take; mapping out their supply chains. Many organisations do not know exactly where their products come from, which is a pitfall for many of them in times of crises like this. So it is important to know where your product comes from; know your suppliers' supplier and their suppliers, so that you have perfectly in picture what road your product takes along the chain. In this way you will know earlier if your product gets affected when a pandemic occurs. This is also covered in literature mainly also by Sharma et al. (2020) in which they propose what organisations should do after the crisis. They propose that organisations should reimagining and redesigning the supply chain: "Greater agility, adoption to changing contexts and ability to redesign the supply chain in the situations of rare events will help organizations to prevent damages caused by pandemics in general, COVID19 in specific" (Sharma et al., 2020, p. 8). Next to that, they also propose that collaboration between buyer-supplier is crucial. Finally, it is very important for organisations to have risk management in place; almost all organisations agreed upon the importance of such a risk management strategy and it is as already explained widely known and praised in literature.

### 5.3 Limitations and further research: Less is known about how public organisations can have a higher chance of becoming a preferred customer

What limits about the research is that it is not yet investigated how organisations can properly implement several strategies imposed in this paper. For instance, how to form and implement a risk management strategy that will hedge for the risks of a pandemic like this. Therefore it would be interesting to investigate further how to create and implement such a risk management strategy. It is stated in the research that risk management will change in the future especially with regard to SC management. In the future, the SC needs to become more resilient with the help of new technologies creating a SC 4.0. This can be done with shared IT systems, blockchain or further developed risk management programmes. How this is going to develop in the near future is a chance for further research. It might be useful to look into how risk management is actually going to change, and how organisations can try to make their SC more resilient. Also, it is interesting to see what technologies can be of use.

Furthermore, it is not investigated on how public organisations can become a preferred customer. As it is difficult for these organisations to achieve this status, it might be useful for further research to investigate how they will become more likely to gain this status. It can be interesting to investigate how the gap between public and private organisations in becoming a preferred customer can be taken away or reduced.

Also, this research proposes that organisations single sourcing are more likely to come into trouble than organisations who have alternatives with several suppliers i.e. multiple sourcing. Future research might investigate further what the exact difference is between single and multiple sourcing in times of a pandemic like COVID19. Next to that, it

could be seen that in times of a pandemic like this, organisations spread their risk by looking for alternative suppliers. This might also lead to new opportunities for research as it might be useful to investigate how to properly look for alternative suppliers.

Another limitation about this research is the setup of the sample size, as most companies of the 30 are private organisations. Therefore it would be better if the division of organisations was 15 private and 15 public. In this way the explanatory power of the hypotheses would be higher. Future research might have more public organisations in the sample size and that it is more evenly distributed.

Finally, a limitation might be is that this research is based upon interviews and interviews can be biased. First of all, the responses can be influenced by the interviewer as he or she decides how to ask the question. Next to that, the answers of the interviewee can be interpreted different by the interviewer.

#### 5.4 As COVID19 has had a serious impact on organisations and their ways of purchasing, it might be useful to look at how procurement will change in the future as a consequence of this crisis

After all, it can be concluded that COVID19 has had a major impact on the organisations, and will have in the future a remaining impact on how organisations will organise their procurement. Throughout the research it became clear that it will result in all kinds of changes when it comes to procurement and the way of working. This part of the paper will highlight the most changes that will come during and after this crisis.

First of all, the crisis was a clear eye opener for many organisations. What can be expected is that organisations will focus more on multiple sourcing, so not only buying at one suppliers but try to source at much as possible suppliers in order to build alternatives. Before the crisis this has been done too less. It could be seen that many organisations benefited from multiple sourcing which has had a positive influence on how they coped. Next to that, relation management will become way more important, with regard to buyer-supplier relationships. It was an eye opener for many companies that after all they found out that the relationship with suppliers is very important. So, relationship building and becoming a preferred customer will be way more important in the future. In short, good contact with suppliers and give them more attention. Next to that, contract management will become more important as it is highly recommended by many respondents. Another aspect which will gain way more attention in the coming years will be risk management. It could be seen that almost every organisation agreed upon the fact that risk management would be very useful in these situations. What is more is that organisations are trying to visualize their supply chains better, so they precisely know where there product comes from and possible risks can be undermined. Another major change what can be expected is that companies will source locally in the future. COVID19 has been realizing organisations that remote sourcing can have many risks and that local sourcing is way safer; so more focus on quality instead of costs. If we look at the way of working, in the future, people will work from distance and online only more than now. Many organisations came to the conclusion that this is a very efficient way of working and therefore can become the normal way of working.

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## Appendix A: Benefits remote sourcing

Monczka and Giunipero (1984)	Monczka and Trent, 1991	Nassimbeni (2006)
<ul style="list-style-type: none"> <li>● Lower prices</li> <li>● Firm had worldwide operations and attitude</li> <li>● Availability of foreign products</li> <li>● Improved quality of foreign products</li> <li>● Technology available from foreign sources</li> <li>● To fulfil countertrade/offset/local content requirements</li> <li>● Due to developing worldwide competition</li> <li>● Improved delivery of foreign product</li> </ul>	<ul style="list-style-type: none"> <li>● Cost reduction</li> <li>● Quality improvements</li> <li>● Increased exposure to worldwide technology</li> <li>● Delivery and reliability improvements</li> <li>● Introduction of competition to the local supply base</li> <li>● Establishing a presence in a foreign market</li> <li>● Satisfying offset requirements</li> <li>● Increase the number of available sources</li> <li>● Reacting to the offshore sourcing practices of competitors</li> </ul>	<ul style="list-style-type: none"> <li>● Purchase materials and components at lower costs</li> <li>● Achieve resources not available in the home country</li> <li>● Possibility of acquiring less expensive manpower</li> <li>● Global competition</li> <li>● Global attitudes of the company</li> <li>● Possibility of acquiring advanced technologies</li> <li>● Reduction of commercial barriers</li> <li>● Possibility of developing a presence on foreign markets</li> <li>● Presence of plants in foreign countries</li> <li>● Possibility of selling products on supplying markets</li> <li>● More favourable taxation</li> </ul>

Source: Holweg et al. (2011, p. 334)

## Appendix B: Interview Protocol

So I've put together some questions for this interview. First I will ask some general questions about the company itself and the suppliers and the customers. After that I will focus a little more on COVID19, so how you deal with it as a company and especially with procurement.

Before I start, I just want to ask if you're okay with me recording the conversation?

1. I first wanted to know more about the company itself, what kind of company it is and in which sector it operates?
2. Who are your customers?
3. And what is the origin of your suppliers? What kind of companies are these? Are they mainly local or do they come from further afield?

Okay clear, then I want to go more towards the COVID19 now.

4. Just to get straight to the point, how has your company been affected by COVID19?
5. How did you get relevant information regarding this crisis, does it come from, for example, a headquarter or office or a certain association or other partners?
6. How has your risk management reacted to this crisis? And what has changed in your risk management?
7. What strategy did you adopt when this crisis occurred? (did you continue production, did you stop or did you just ramp up production?)
8. What measures have you taken? And then I would like to know about 4 parts. So measures with regard to logistics, the delivery of products, production and your customers?
9. What has changed in your and customers' purchasing behavior or purchasing strategy (hoarding or purchasing less)?

Then I also have some additional questions, which are more about how you look back on how you have approached it as a company:

10. And if you look back, don't you say, we handled it well as a company, or do you say, this and this could have been done differently?

11. What do you think has been decisive for this company to get through this crisis?
12. What would you recommend other companies to do in this kind of situation?

Okay then lastly I have two short questions;

13. The first is whether you notice a difference between suppliers who are local or further away? Because you assume that companies that have suppliers further away (in Asia for instance) will now get into more trouble.
14. Second, about the preferred customer, do you notice that preferred customers are now given priority?