

Corona crisis and its impact on supply chains

A study from the Supply
Chain Finance research
group at Windesheim
University of Applied
Sciences



Introduction

This document presents the results of a research project focused on investigating the impact of the corona crisis on supply chains and, specifically, supply chain risk management practices, with an additional focus on the management of financial flows.

The research focused on the impact of the crisis in the **second quarter of 2020**, and included three main activities: a survey, which collected **339 responses**, more than **50 interviews** with different players and the analysis of more than **1000 news and articles** from journals, newspapers, specialised magazines and other relevant sources.

This report will focus on four main key messages: (i) the impact of the crisis on company revenues, (ii) the impact of the crisis on other relevant supply chain

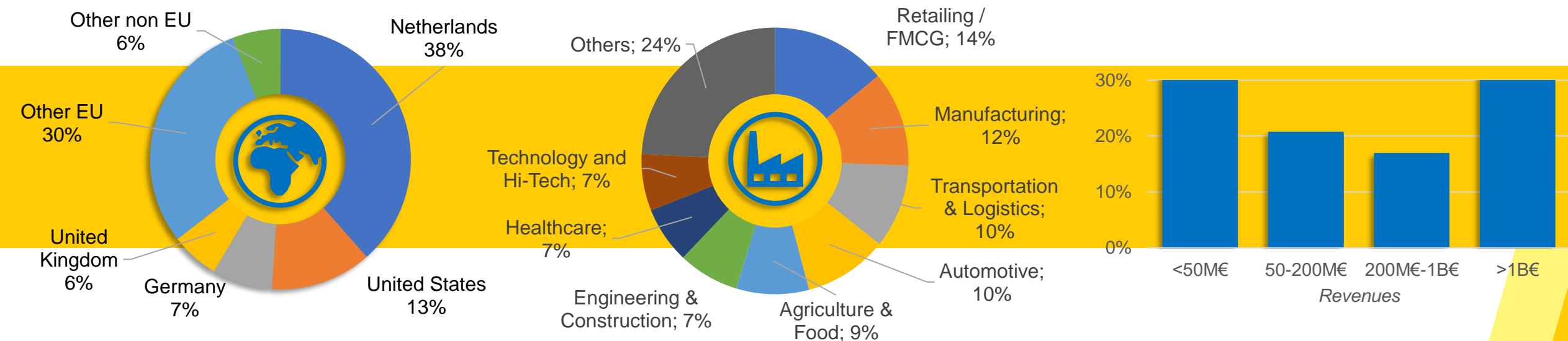
management key factors, (iii) actions taken by companies in facing the crisis and (iv) result of crisis and actions taken on working capital and management of financial flows.

Per each key message, we will provide an introductory text with the sumup of our main findings, followed by the most relevant evidences supporting our argument. Such evidence is usually based on survey, accompanied by the most relevant quotes (in blue boxes) that have guided us in interpreting data. When appropriate, we have provided news references.



Survey data

- Survey run from May 2020 to October 2020
- Main demographic information are reported as below



Let's focus on some key messages

KM2: impact of the crisis

We measured impact on raw material prices, access to supply, recalling of orders and cash needs

KM3: actions taken

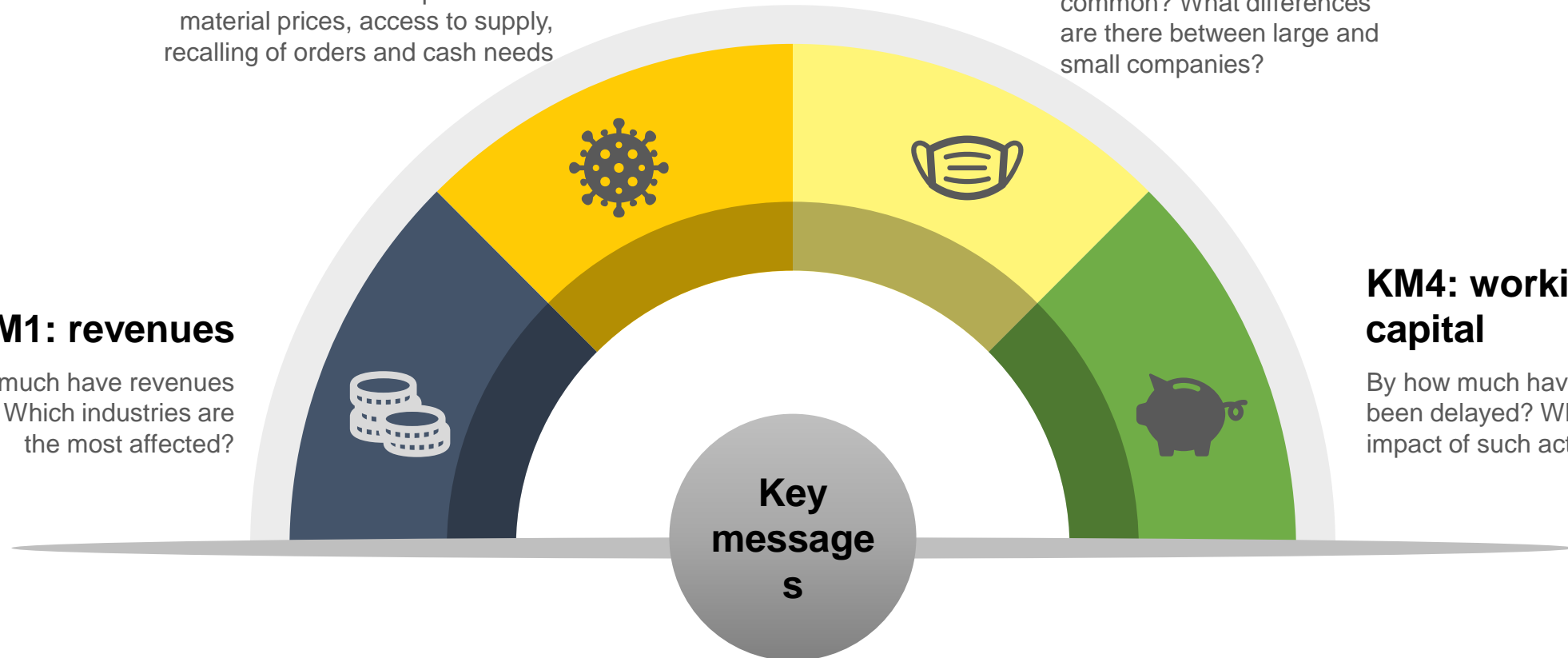
Which actions are the most common? What differences are there between large and small companies?

KM1: revenues

How much have revenues decreased? Which industries are the most affected?

KM4: working capital

By how much have payment been delayed? What is the impact of such actions?



Key Message 1

Variation in Revenues



We first focused on the impact of the crisis on revenues, asking respondents for a comparison between **Q2 2020** and **Q2 2019**

Overall, we observe a widespread reduction in revenues, averaging between 10 to 15%

The least affected industry is retailing / FMCG, with retailers specifically increasing their revenues, on average, 5% to 15%.

Among other notable industries that didn't record a strong negative performance are healthcare, which presented almost no changes in revenues on average (with a peak of companies that didn't report any change in revenues) and Hi-tech and Technology (which presented a peak of companies reporting low to no changes in revenues).

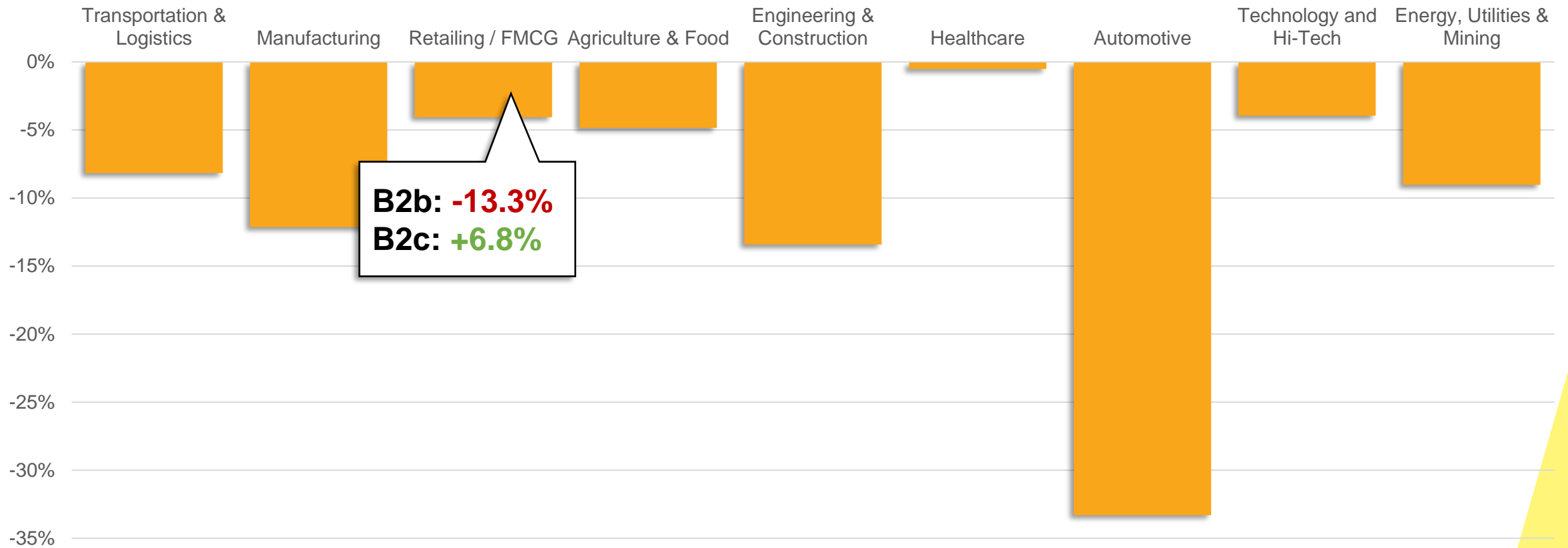
On the other side of the spectrum the most affected industry is automotive, with average losses higher than 30%, followed by engineering and construction. The logistics industry also recorded an average reduction in revenues, which however is strongly spread throughout the sample and depends strongly on the specific sector that the logistics operator answering the survey serves.

Finally, there are no appreciable (meaning: statistically meaningful) differences between SMEs and large companies in terms of revenues variation, despite a small difference in the average values (9.8% for SMEs and 11.8% for Large companies).



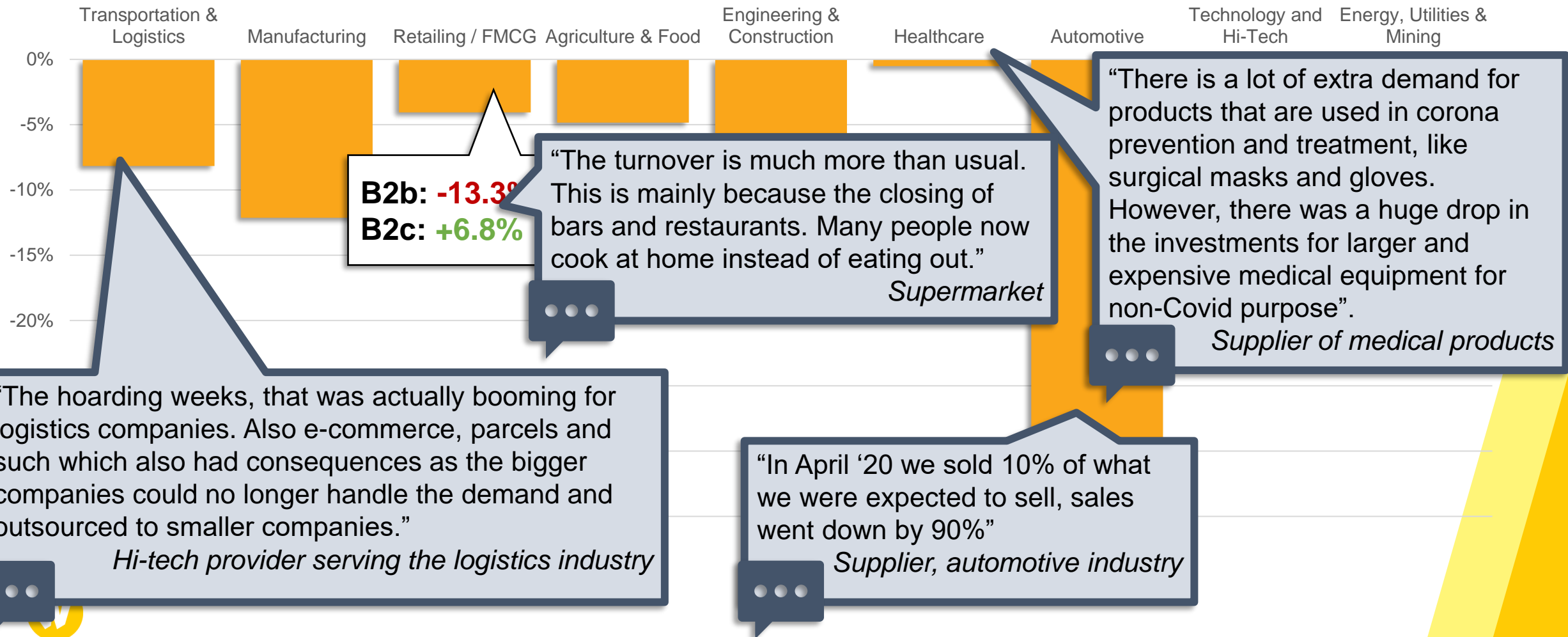
Variation in revenues: average values

Reduction in revenues by industry



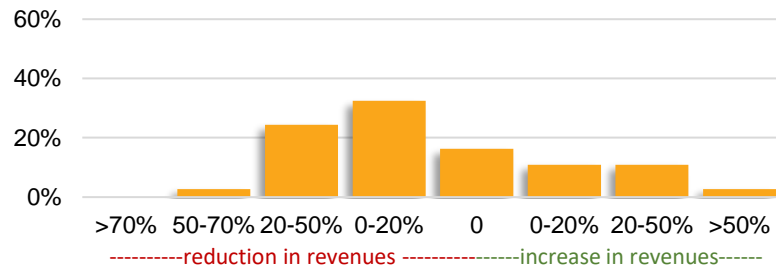
Variation in revenues: average values

Reduction in revenues by industry

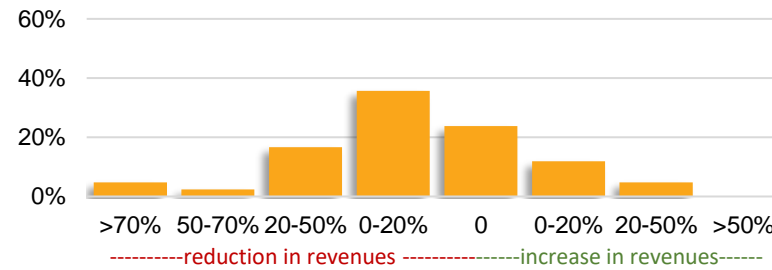


Reduction in revenues: Industry focus

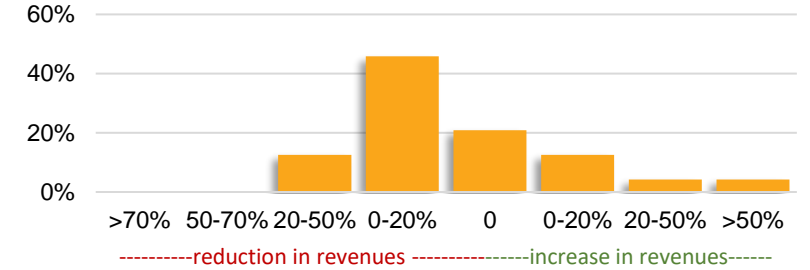
Transportation & Logistics



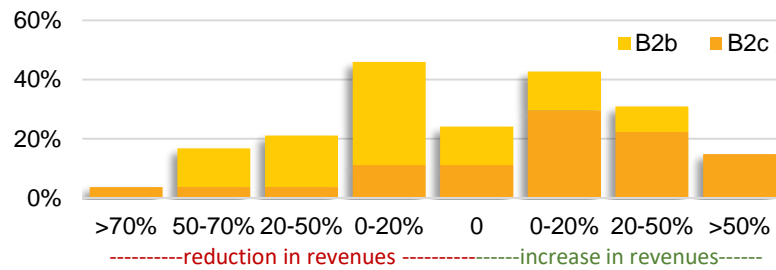
Manufacturing



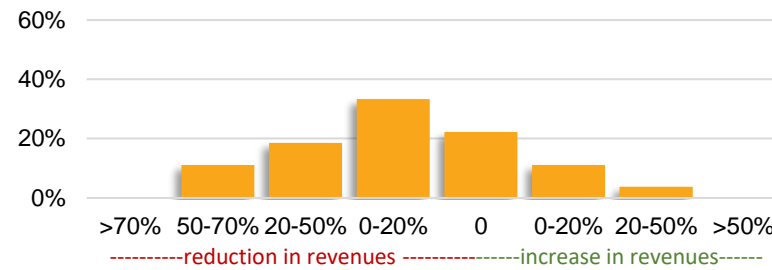
Technology and Hi-Tech



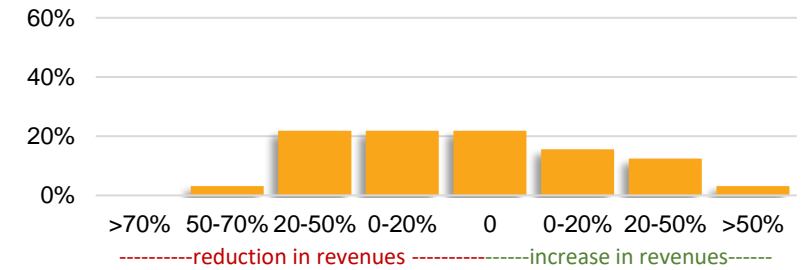
Retailing / FMCG



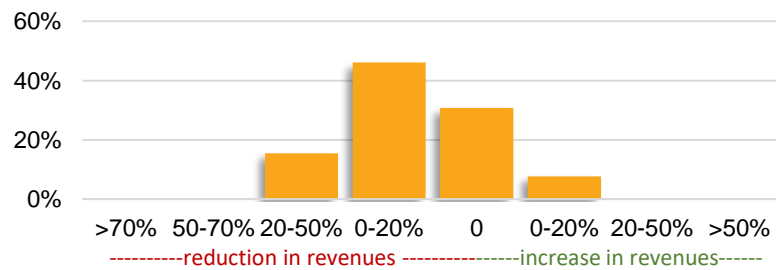
Engineering & Construction



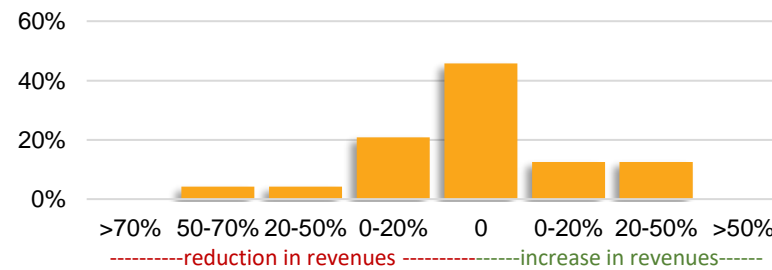
Agriculture & Food



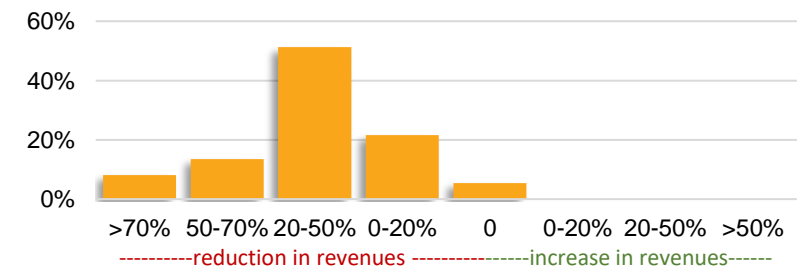
Energy, Utilities & Mining



Healthcare



Automotive



Key Message 2

Impact of the Crisis



We measured the impact of the crisis across five dimensions, again focusing on Q2 2020: (i) ability to access supply; (ii) fluctuation in the price of inputs (e.g. raw materials); (iii) availability of funds to cover working capital needs; (iv) degree of orders recalled towards supplier; (v) degree of orders recalled from buyers.

Dimension (i) to (iii) are relatively consistent across industries, while (iv) and (v) tend to be more heterogeneous.

Strong fluctuations in the price of inputs was registered in almost every industry, while most of the respondents were able to secure access to supply (albeit through different strategies, often with an impact on the price of inputs), and did not report significant issues in covering working capital needs.

As in the previous key message, the automotive industry recorded one of the worst performance across the five dimensions (together with Engineering and Construction).

As expected, there is a strong meaningful correlation between orders recalled to suppliers and orders recalled from buyers.

A FOCUS ON BANKRUPTCY

As a separate question, we enquired with respondents to the survey in relation to how many suppliers bankrupted in the specific timeframe under evaluation.

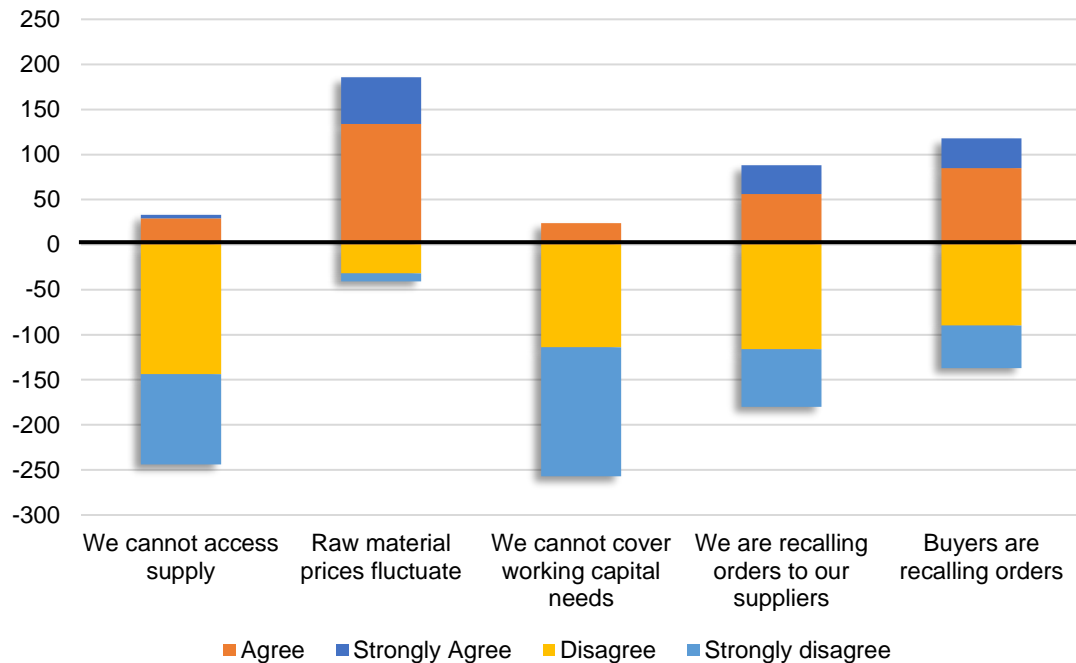
We found that a relatively low number of suppliers bankrupted in that specific timeframe. This is likely explained by legislation (which was implemented more strongly in Europe) that limited or completely inhibited bankruptcies.

As those limitations are and will be progressively lifted, the number of corona-related bankruptcies will likely increase.

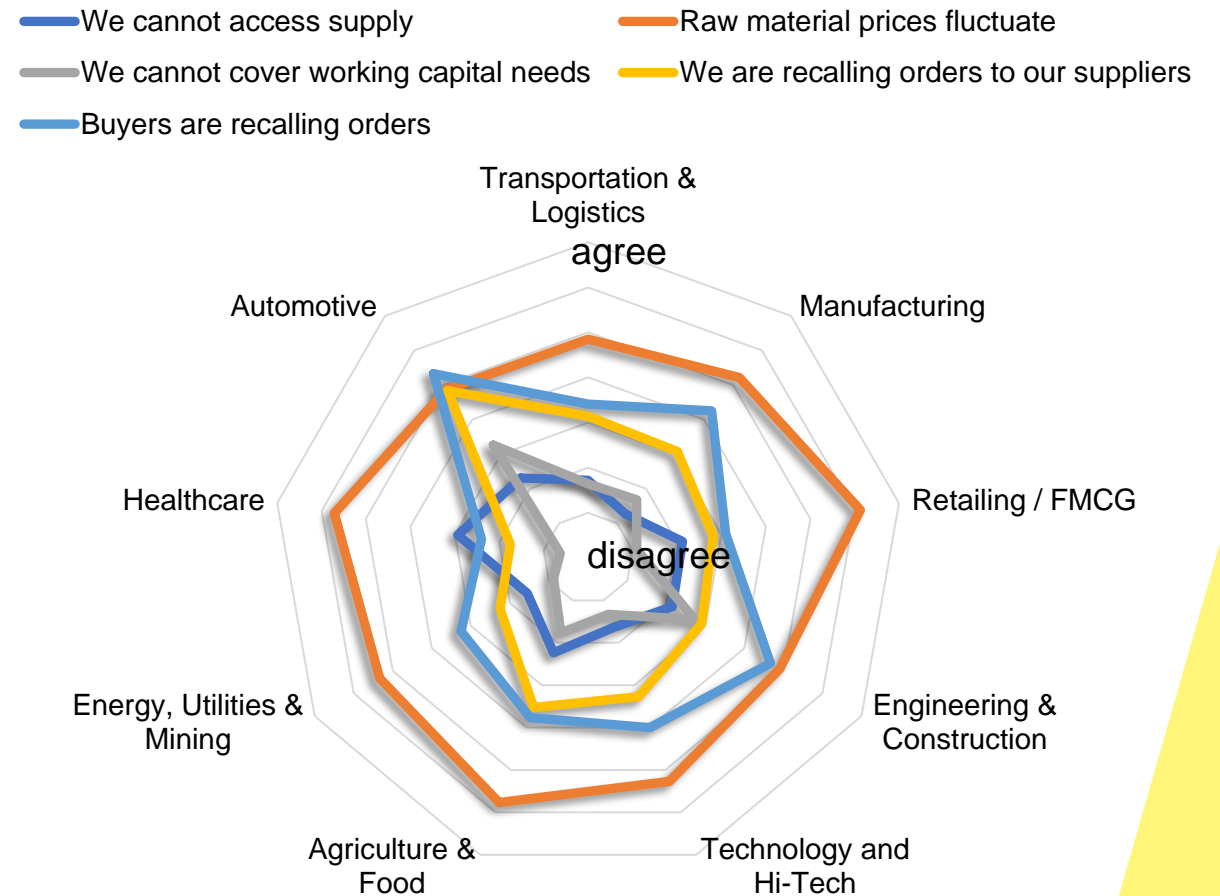


Impact of the crisis over five dimensions

Overall sample

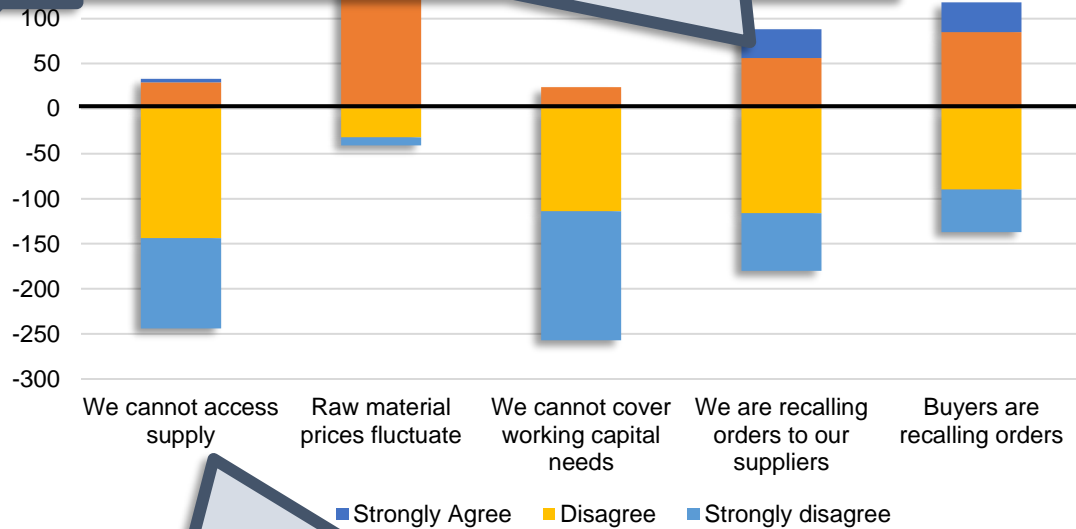


Per industry



“Our warehouses are beginning to ‘crack’ because we have so much inventory on stock and it is not being ordered. [...] so we told our suppliers, guys, our warehouses are full so deliveries are done for now.”

Logistics service provider



“Certain production facilities had to be halted because of raw materials or semi-finished goods not being available.”

Food producer

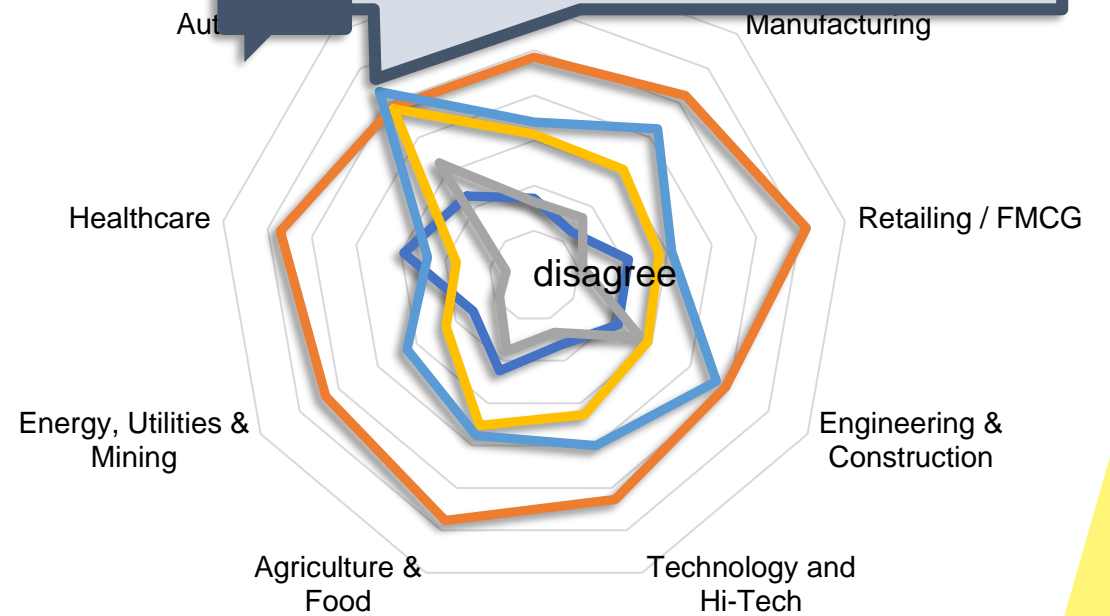
over five dimensions

Per industry

- We cannot access supply
- We cannot cover working capital needs
- Buyers are recalling orders

“The first thing we did is look at our orders to suppliers. We recalled all orders for non-essential items whenever still possible.”

Tier-1 supplier, automotive



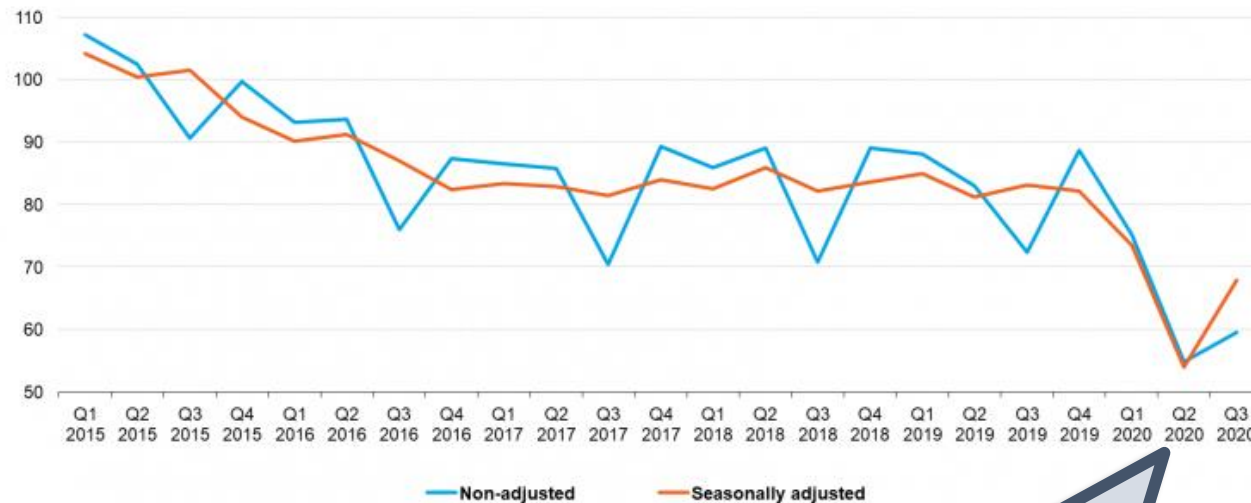
Key message 2 – impact of the crisis (2/2)

- It is important to highlight that – despite somehow expected in generalist news – bankruptcies were kept at a minimum during COVID
- This is due to a “natural” delay effect of court procedures, which take time to finalise...
- ...as well as the combination of financial resources from governments, which in some european countries resulted in the partial or complete stop of bankrupting procedures



Bankruptcies: delayed effect?

EU (available countries), declarations of bankruptcies, Q1 2015 to Q3 2020
(2015=100)



Source: Eurostat

ostat

“We are expecting the biggest hit in Q4. [...] Everything keeps running but that’s because many companies are using government support. Some companies who were in trouble before the pandemic, especially in the aviation industry, are kept alive artificially.”

Tech provider

- Bankruptcies were kept at a minimum during COVID
- This is due to a “natural” delay effect of court procedures, which take time to finalise...
- ...as well as actions and financial resources from governments, which in some European countries resulted in the partial or complete stop of bankrupting procedures

[on bankruptcies laws and taxes postponement:]
“is just ‘postponement of execution’ [...] it all adds up and we’ll have to pay for it at some point.”

Tech provider



Key Message 3

Actions Taken



As one might expect, popular actions tend to have an immediate impact on the company, similarly to a band-aid effect. They include forming a risk management team (by far the most commonly adopted action), delaying investment in fixed assets, scaling down production or reducing workforce.

Companies tended to act relatively swiftly, taking most actions within one month from the beginning of the crisis.¹ There is not a significant overall difference between actions taken within of after the first month in which the crisis started. By far, the action *'forming a risk management team'* as been taken by virtually the entire sample within the first month of the crisis.

Among actions that might necessarily be categorised as 'band-aid actions' (e.g. delaying planned investments), many companies shifted to e-commerce and started sharing more information with supply chain partners in an effort to improve demand forecasting. Through the words of a hi-tech player:

'There is more attention to digitalisation in the supply chain. That has actually led to an increase in revenues'

This trend is undoubtedly welcome by many: will it also last, once the 'new normal' settles?

SMALL VERSUS LARGE

On a second point, there is a statistically meaningful difference between the number of actions taken by large versus small companies. This can at least partially be explained with the simple fact that large companies carry out more and more complex activities than smaller one, and as such have to take more action in facing a pandemic. However, it might also be seen as the sign of small companies being less active in responding to the crisis, which might have daring consequences over time.

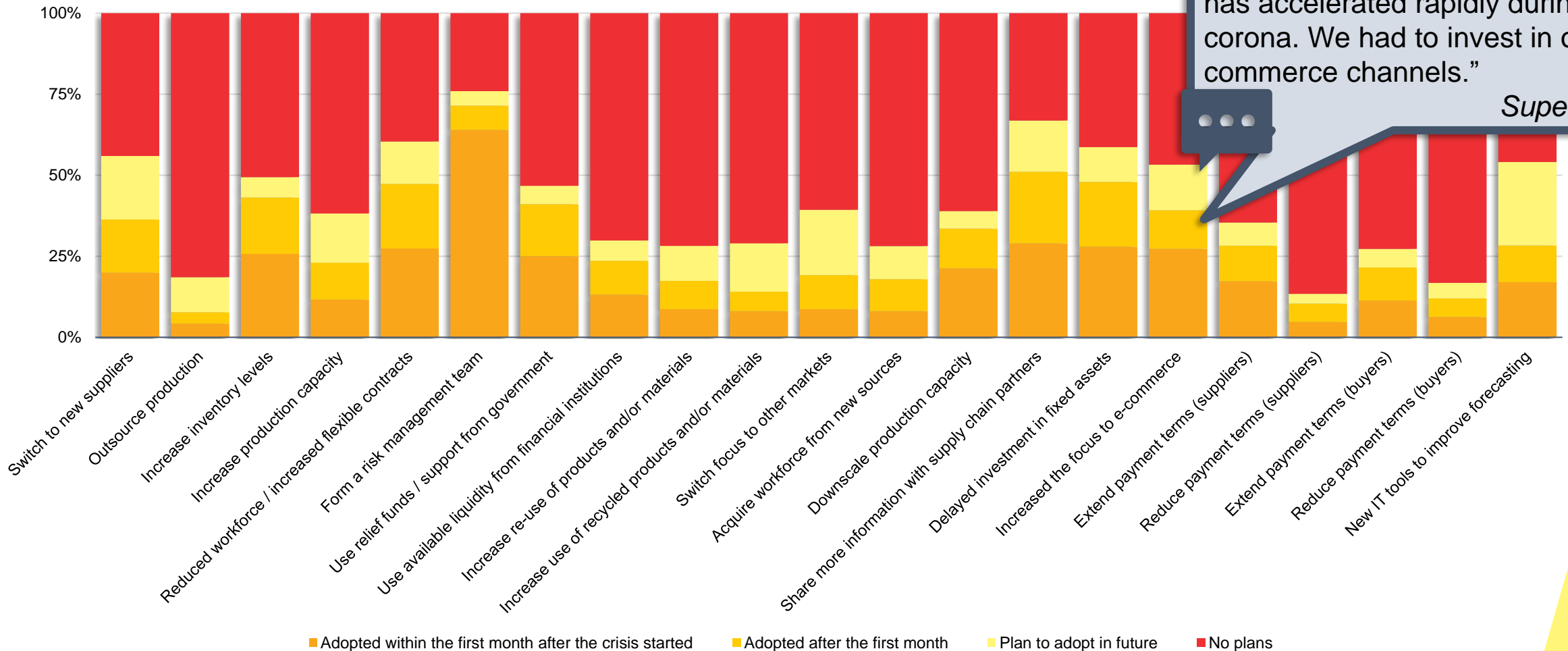
A LOOK AT THE FUTURE

Finally, we enquired over which actions are planned to be adopted in the future. Although inquiring about the future is often unreliable, switching to new markets, adding or switching suppliers and making use of new IT tools stand out as most common planned actions.



(1): more specifically, there is a statistically meaningful difference between the number of actions taken within the first month and after the first month (the former being higher than the latter)

Actions taken in response to the crisis

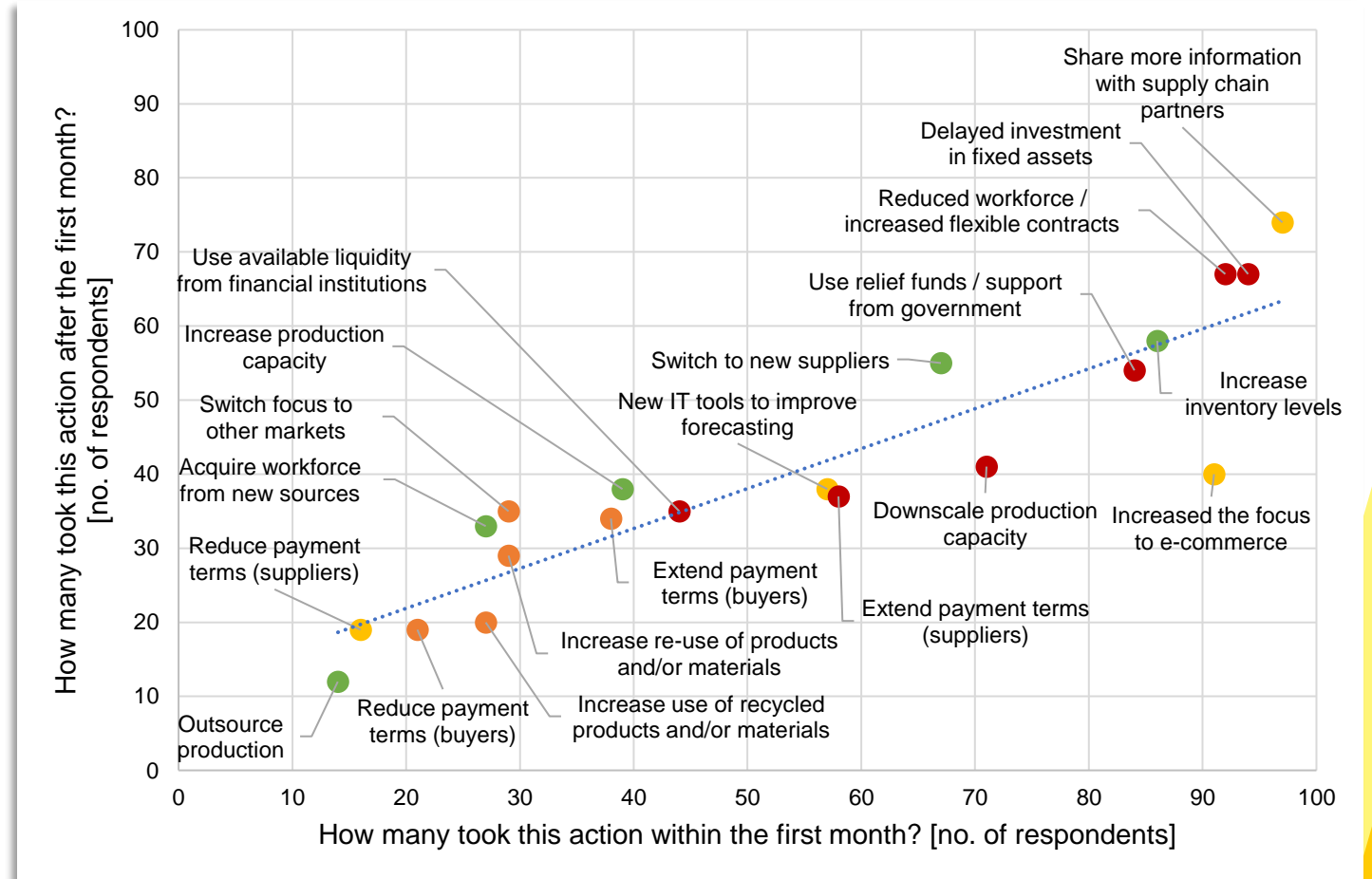


“The growth of the online market has accelerated rapidly during corona. We had to invest in our e-commerce channels.”
Supermarket



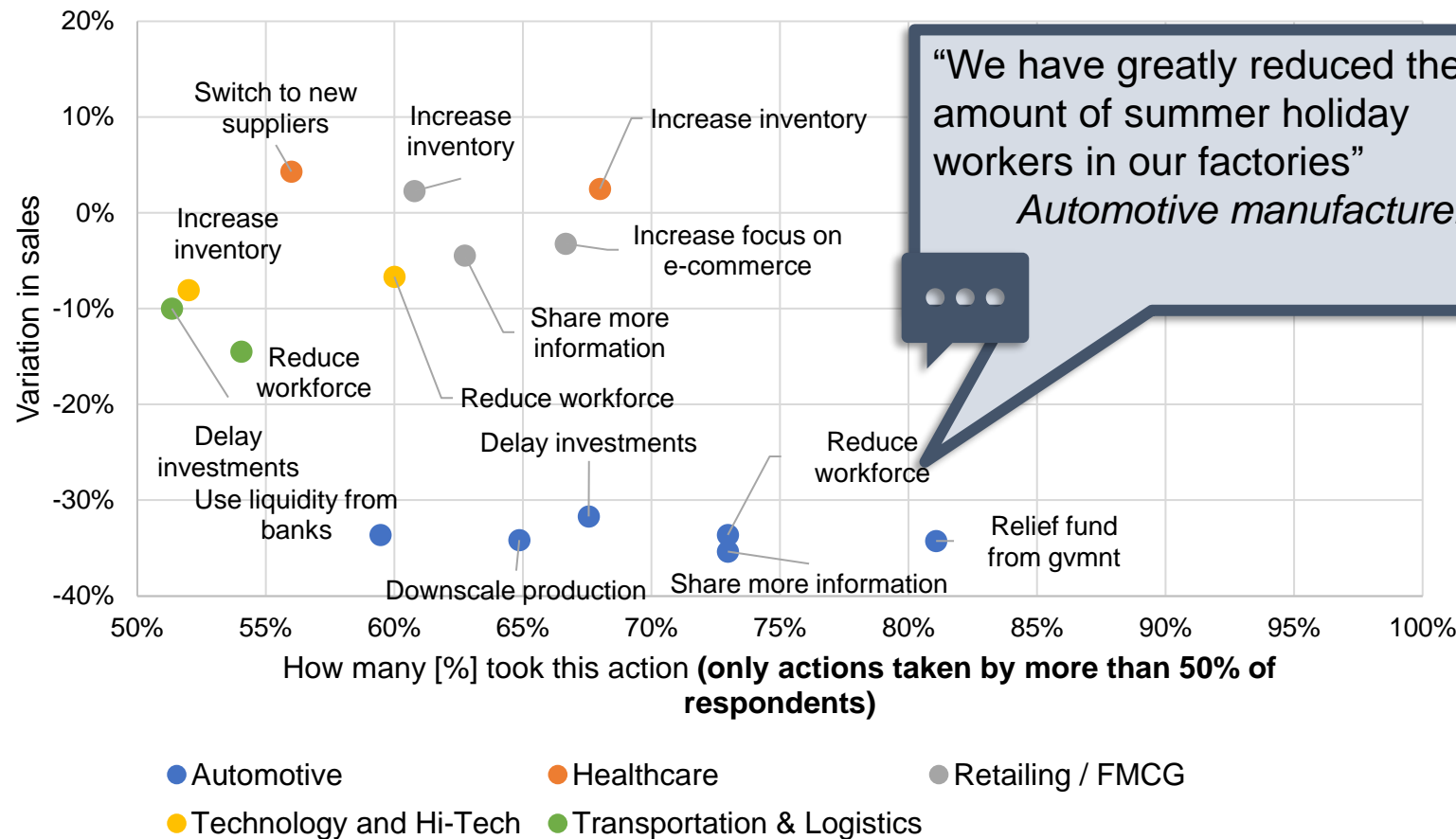
Actions taken within or after the first month

- The chart compares actions taken² within and after the first month
- Essentially, the 'pool' of actions taken in response to the crisis tend to remain the same within one month or after one month from the beginning of the crisis
- The difference is that companies move faster or slower in responding



(2): the only exception is 'forming a risk management team' (not in the chart) which is disproportionately adopted within the first month (152), and adopted by an insignificant number of companies after that.

Actions, industries and sales variation

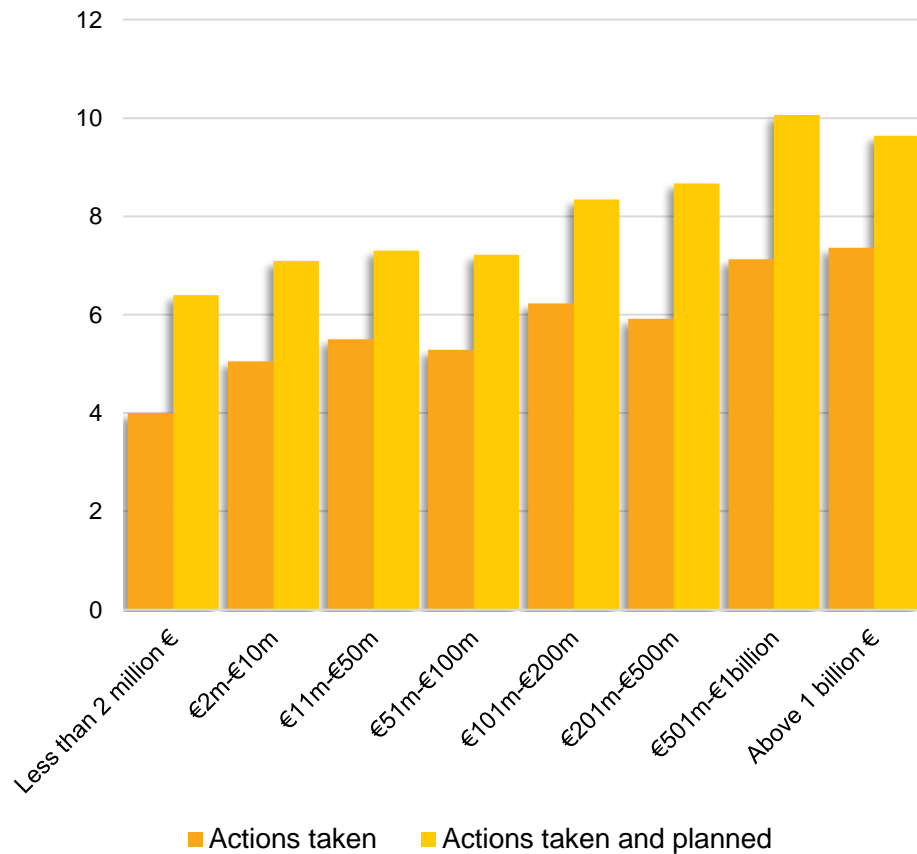


- Different industries react differently to the crisis
- In automotive, where the impact is clearly negative, actions are mostly aimed at containing the effects
- In healthcare, where the impact of the crisis on revenues is less pronounced, actions are focused on avoiding disruptions
- Margins and overall supply chain strategies also play a role in shaping the companies' response

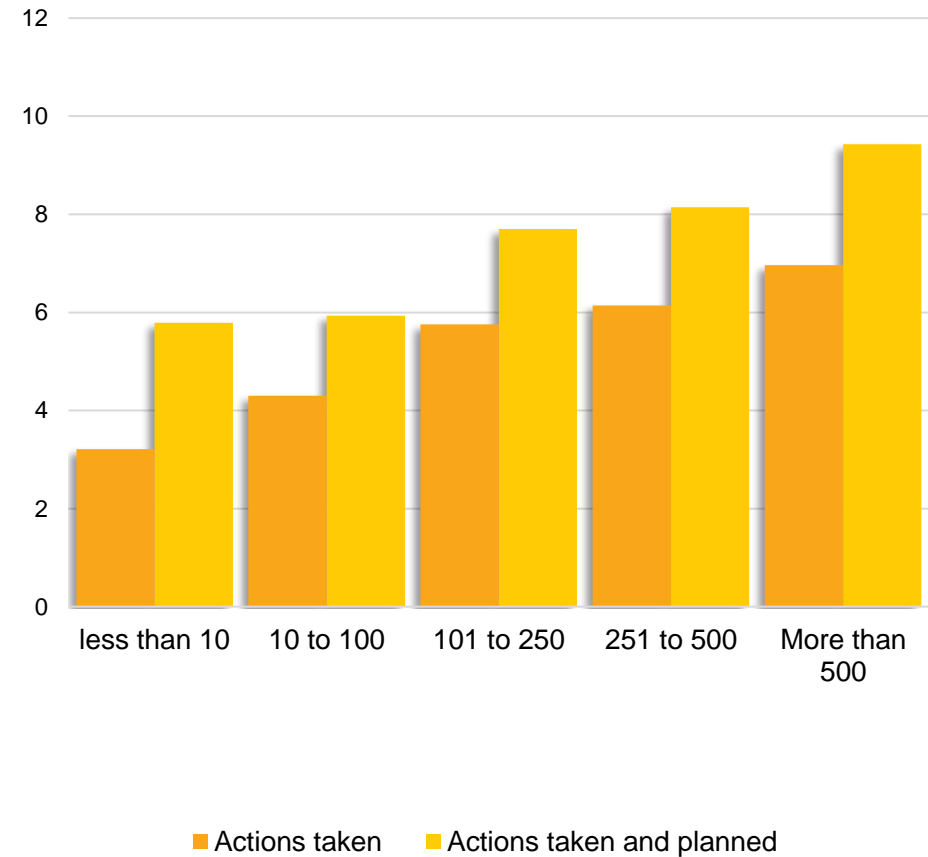


Actions taken by company size

Actions taken by revenue class



Actions taken by number of employees



Key Message 4

Working Capital



As expected, the crisis hits on working capital and liquidity levels. The majority of the respondents highlighted that working capital needs were covered at the time they filled the survey (SEE KEY MESSAGE 1). However, most of the respondents indicate that they are having difficulties collecting payments from their buyers. As a consequence, payments towards suppliers are delayed and investments in fixed assets are reduced.

Respondents that present lateness in collecting from buyers have, on average, an increase of **20 to 30 days** in Days of Sales Outstanding (DSO). Although an additional month of DSO might not look like the sign of a pandemic (in itself it is, strictly speaking, an increase of working capital of 6% of revenues), it should be noted that this refers to delay on contractual terms only (not mutually agreed new contractual terms), calculated on the entire revenues portfolio, which at the same time is likely hit by an overall reduction of sales. Therefore, its impact shouldn't be underestimated.

Moreover, it is interesting to evaluate the impact of the crisis on the other components of the Cash-to-cash cycle (DSO plus inventory turnover, net of Days of Payable Outstanding, or DPO). Although we do not have quantitative information to evaluate the impact on inventories (but several respondents reported an increase, either to cope with disruption or because of cancelled orders), we do have enough information to assess changes to DPO.

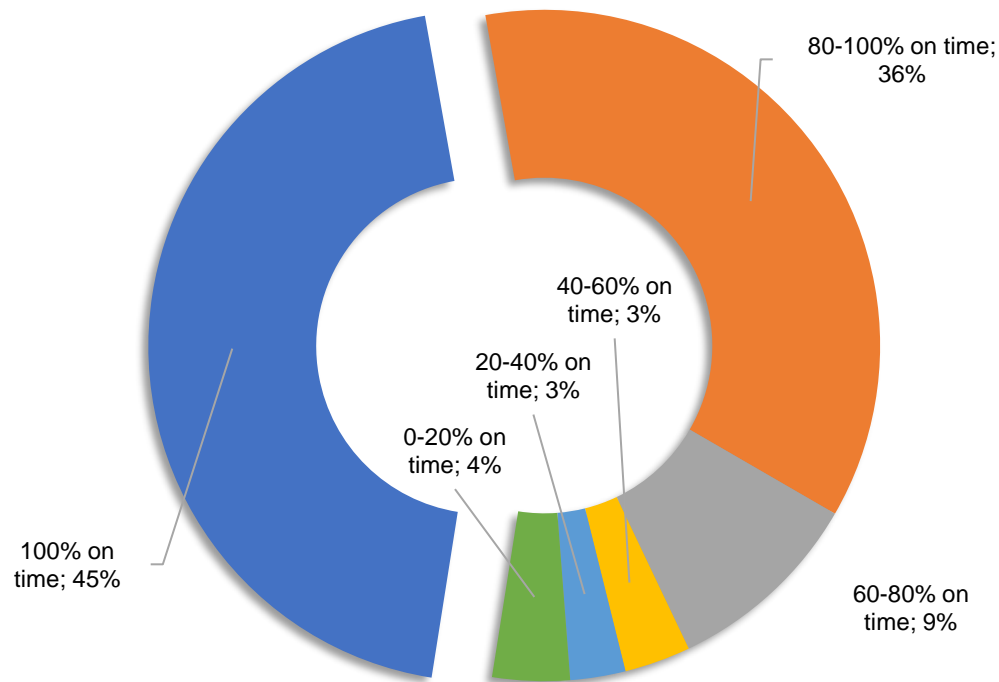
Calculations show that DPO increased as well, roughly by the same order of magnitude as DSO. It would be tempting to see those changes as equal and opposite in size, cancelling each other out. However, this is not the case. Many companies that report an increase in DSO do not report an increase in DPO. This signals that increases in working capital in the sample are likely.

Several companies thus reported an extension in DPO but not in DSO: supply chain disruptions or opportunities for financial gain?

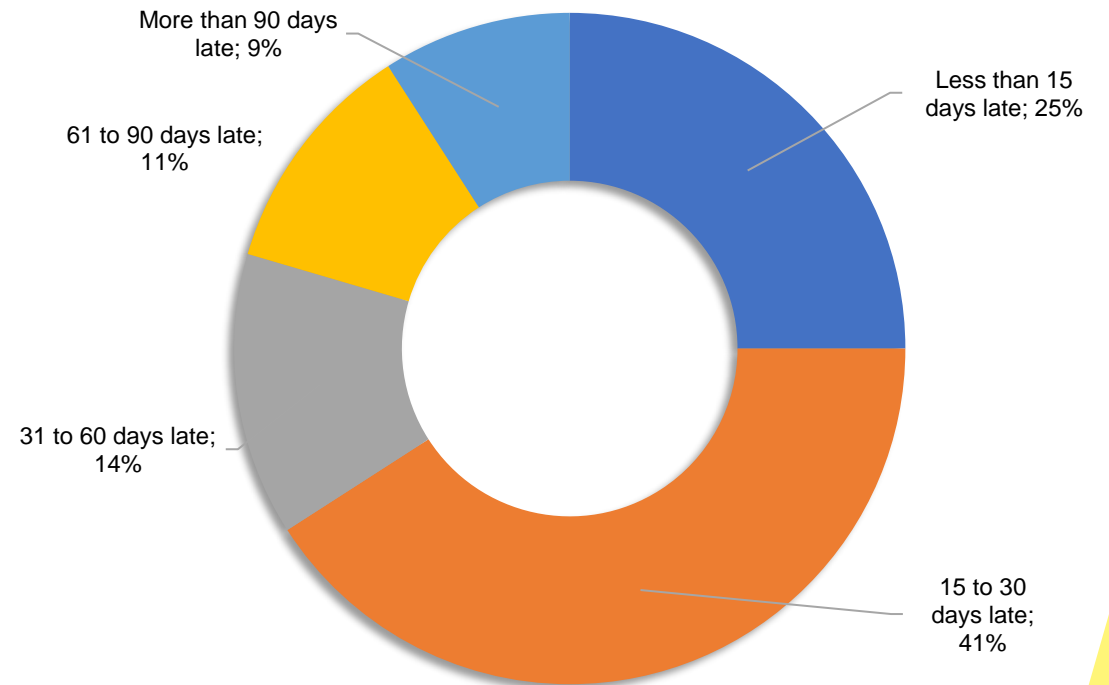


Key message 4 – working capital

What share of invoices are paid late by your buyers



How late are paid invoices (when not collected on time)



Key message 4 – working capital

What share of invoices are paid late by your buyers

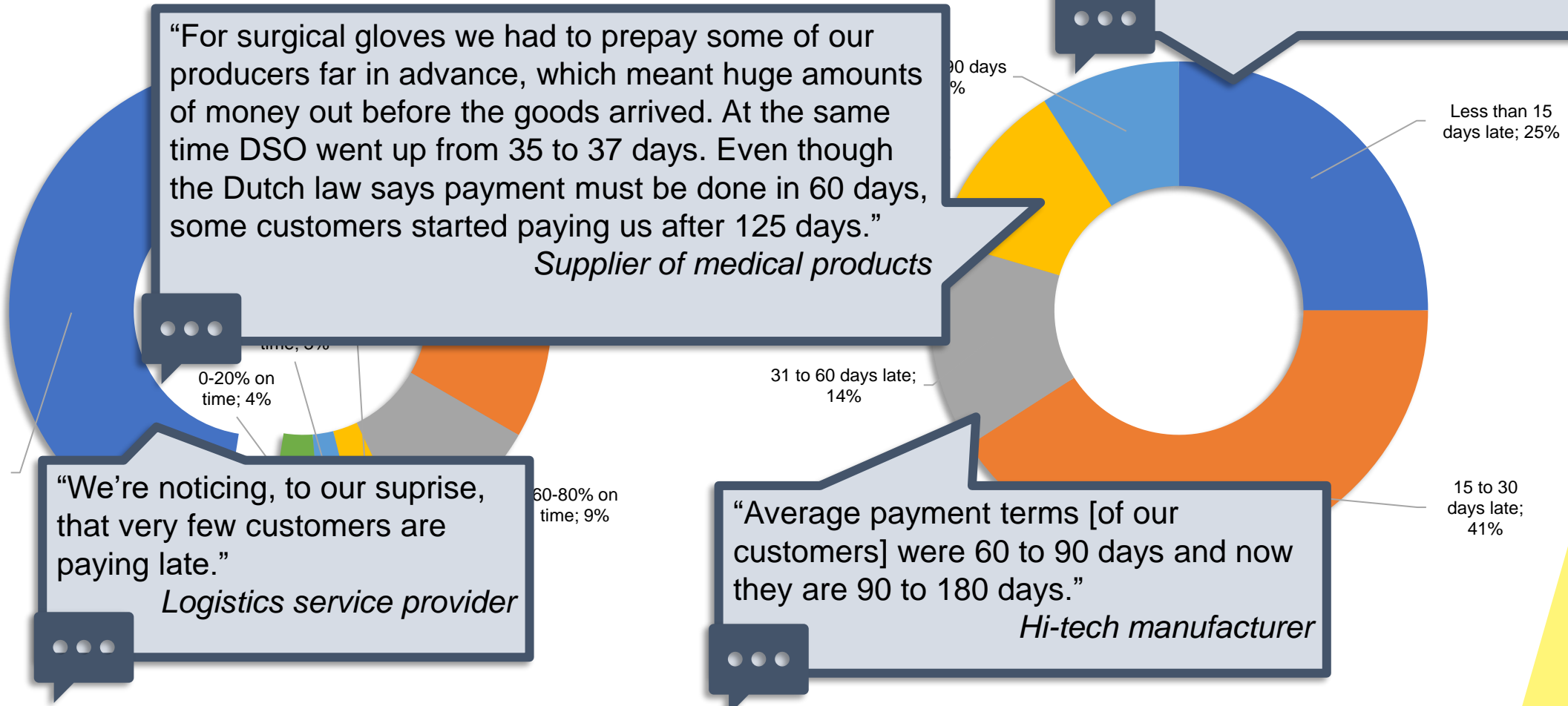
How late are they

“All of our customers (hotels, restaurants and cafes) have asked for longer payment terms when they were closed down completely”
Food manufacturer

“For surgical gloves we had to prepay some of our producers far in advance, which meant huge amounts of money out before the goods arrived. At the same time DSO went up from 35 to 37 days. Even though the Dutch law says payment must be done in 60 days, some customers started paying us after 125 days.”
Supplier of medical products

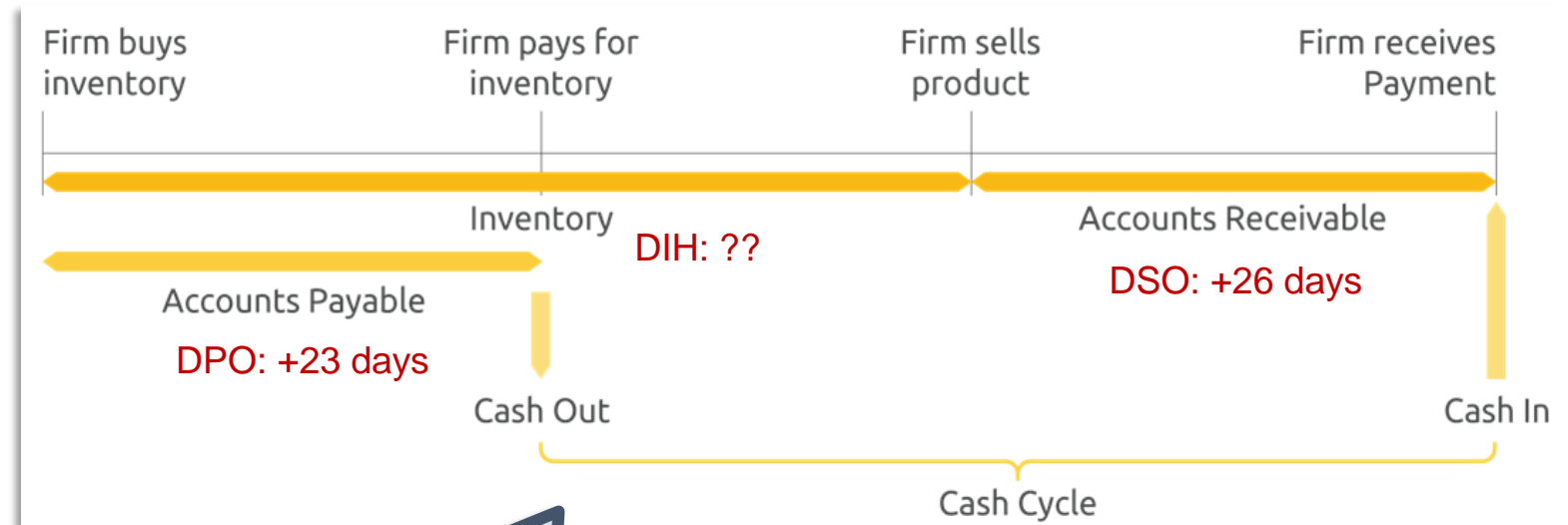
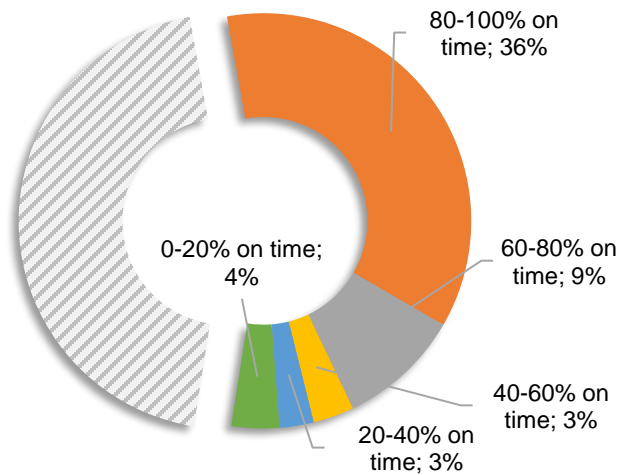
“We’re noticing, to our surprise, that very few customers are paying late.”
Logistics service provider

“Average payment terms [of our customers] were 60 to 90 days and now they are 90 to 180 days.”
Hi-tech manufacturer



Key message 4 – working capital

What share of invoices are paid late by your buyers

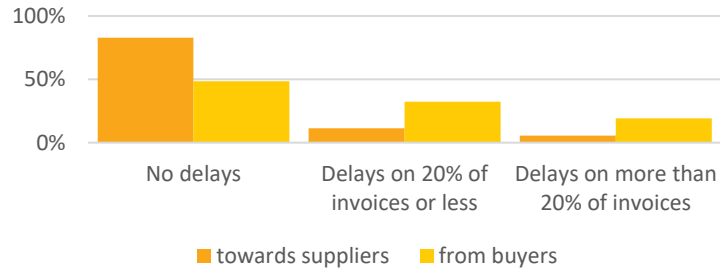


“All contracts with our suppliers have been met from our sides. [...] But on the other side we don't see our debtors paying us.”
Technology provider

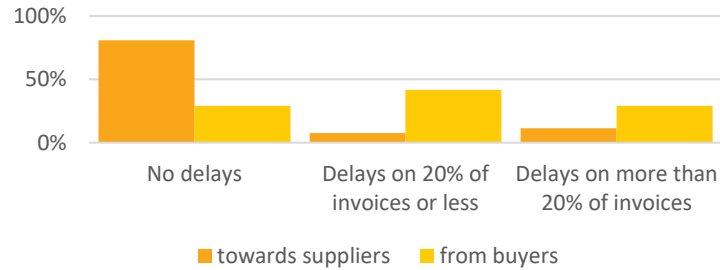


Delay in paying invoices by industry

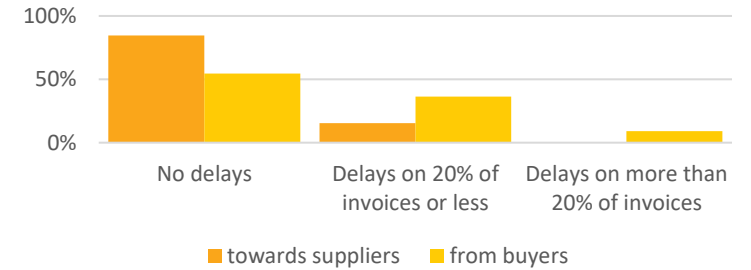
Transportation & Logistics



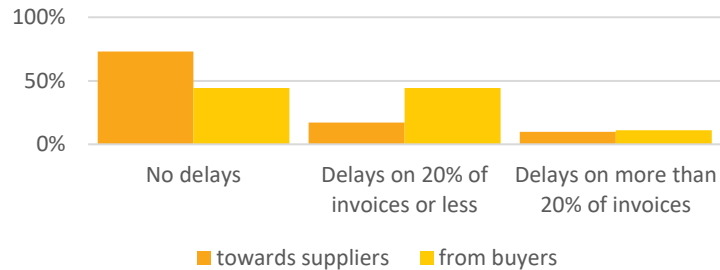
Engineering & Construction



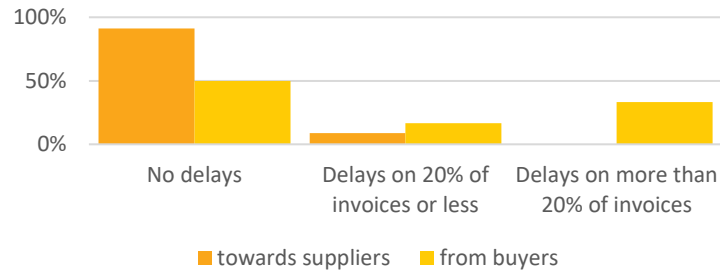
Energy, Utilities & Mining



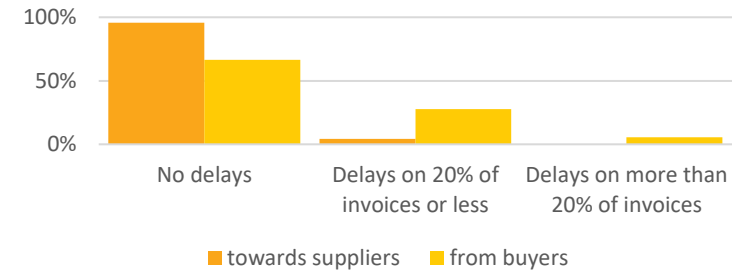
Manufacturing



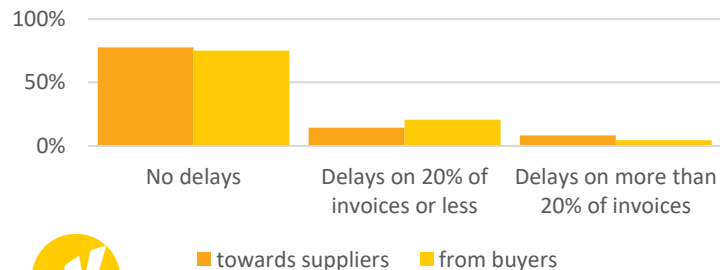
Technology and Hi-Tech



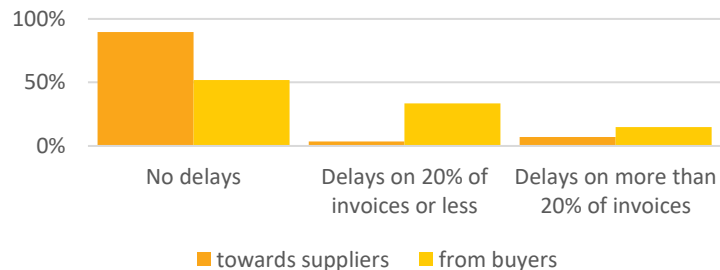
Healthcare



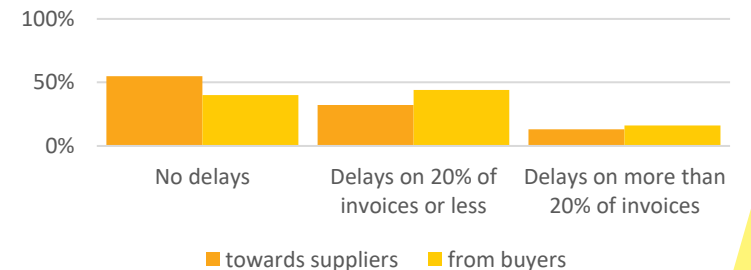
Retailing / FMCG



Agriculture & Food



Automotive



towards suppliers from buyers

towards suppliers from buyers

towards suppliers from buyers

Notes and acknowledgments



Methodology

This report is the output of a large scale research project carried out by the Supply Chain Finance Research Group within the Strategic Entrepreneurship Research Centre at Windesheim University of Applied Sciences, in the Netherlands.

The project included three components: a survey aimed at companies (globally, albeit focusing mostly on Europe) to evaluate the impact of the crisis on their supply chain, interviews with companies that filled in the survey, and collection of a large number of news articles on the impact of the crisis from news sources in and outside of the Netherlands.

Data collection was carried out between May and October 2020. The survey collected a total of **339 answers**, while **54 interviews** have been carried out:

- **39** with small and large companies in different industries;
- **9** with banks and fintechs
- **6** with law firms

On top of this, **more than 1000 news articles** from reputable sources, related to the project topics and published within the same time frame, have been collected and stored in a database to be analysed and used to support the development of key insights.



Acknowledgments and special thanks

First, this research has been funded by Connekt. Thanks guys, we truly appreciated it.

Second, we would like to thank all the industry associations or other corporates that have supported us by personally sending their survey to their own members. This includes Evofenedex, TKI Dinalog, Marsh, iTanks, Port of Logistics Overijssel and Inka CV.

Finally, our biggest thanks goes clearly to all the companies that have taken part in this work, either by filling in the (extensive!) survey, being grilled by us in an in-depth interview or in any other way have helped generating this results. We cannot name you for obvious reasons, but hey, if you took part in the study and are reading this lines:

thanks! You guys rock!



Working group

This work was done to a large extent with the support and directly by students at Windesheim University of Applied Sciences in Zwolle (the Netherlands). Let's name them!

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- Jacco Prins
- Jeleesa Renardus
- John Zandink
- Labeeb Chaudhry
- Maria Viester
- Marianne Huigen
- Mark Verbaan
- Marleen Veldman
- Martein Akse
- Michaela Antalova
- Rahma Jama
- Robert Zuidhof
- Steven Bisschop

Those guys have worked with a total of twelve people from the Supply Chain Finance Research Group at Windesheim, who have directly contributed to complete this project:

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- Christiaan de Goeij
- Paulien de Graaf-Muller
- Victor van der Hulst
- Zafer Konakli
- Angelica Parra Cuadros
- Bart Ras
- Michiel Steeman
- Chris Verhoef
- Lisa Zom



Further questions and contact

We'd be happy to get the conversation going.

To know more about this study or our activities more in general, contact Mira Benes:

m.benes@windesheim.nl



**Thanks for
reading**

