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How will the backshoring trend evolve after the COVID-19 crisis ?

Towards a new paradigm of regionalisation ?

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Foreword

First of all, I would like to thank my thesis advisor, Mr Bartholomeus Kamp, for his continuous help and implication throughout my research.

I would also like to thank all the other people who contributed to this work, by giving me their opinion or advice, sharing their experience or supporting me.
I think in particular about my family relatives, my friends and all the people who agreed to answer my questions for this research project.

Table of Contents

List of figures

List of appendices

List of abbreviations

API: Active pharmaceutical ingredient

B2C: Business to consumers

ESM: European single market

EU: European Union

FDI: Foreign direct investment

FSA: Firm specific advantage

GVC: Global value chain

ICU: Intensive care unit

IP: Intellectual property

MNE: Multinational enterprise

PPE: Personal protective equipment

R&D: Research and development

Introduction

"*It will change the nature of globalisation, with which we have lived for the past 40 years*." These were the words of the French president, Emmanuel Macron, in an interview with the Financial Times on April 16th 2020, when describing the future effects of the COVID-19 pandemic.

Alarming announcements were made all over the world by many chiefs of state to bring back production previously offshored or outsourced to the home country, invoking national self-dependence and advocating for more resilience. This phenomenon, called backshoring, is not new and had been on the rise after the financial crisis of 2007-2008. I had already decided to work on that trend before the COVID-19 outbreak but I was interested to analyse the new challenges that came along the pandemic. That is why, I chose to work on the following research question: "*How will the backshoring trend evolve after the COVID-19 crisis? Towards a new paradigm of regionalisation?"*

In this research work, I started by defining the concept of backshoring with the help of the scientific literature and then continued by analysing the existing motives of firms to backshore manufacturing operations before the start of the pandemic. It will be seen that there were already multiple motives for a company to decide to bring back part of its production to its home-base. After that, I pursued with a synthesis of scientific and institutional opinions advocating for backshoring as a response to the COVID-19 crisis as well as others arguing that it is not necessary. Finally, I assessed whether the COVID pandemic may lead to a strengthening of continent-specific forms of international business "regionalisation".

Due to the lack of empirical evidence, I adopted a theory-building approach for the practical part of the research. I then conducted four in-depth interviews with stakeholders directly involved on the matter as they all work for trade associations operating at the Belgian or European level. The amount of interviews was limited to four as many stakeholders declined to answer the questions because they are currently discussing the topic within their own organisation or with their members.

The interviewees' opinions for each topic developed during the interviews will firstly be presented. In a second step, these views will be confronted in a cross-cases analysis to find out potential similar elements. Lastly, the stakeholders' contributions will be compared with the theory in order to formulate some recommendations resulting from the research. The screening

of the interviews had to be made by hand as we did not receive access to the software NVIVO but it did not obstruct the analysis because the classification by files and cases did not apply to the data contained in the interviews.

Finally, this research project will be concluded with a short summary of the analysis with our last thoughts, mentioning the limitations and suggesting ideas for future research.

Literature review

1.1. Historical context and elaboration of a definition for backshoring

To begin with, it is essential to give some historical background to understand how the backshoring trend arose and to define the various terms around the topic that may be confusing and that have evolved over recent years.

Since the 1990s, many multinational enterprises (MNEs) coming from Western Europe and Northern America have decided to move part or all of their production to lower wage countries in Asia or Eastern Europe (Gylling et al, 2015; Leibl et al, 2011) in order to look for new competitive advantages. This could take the form of either foreign direct investments in a new or existing plant (offshoring), in which the control of the production is still held by the offshoring firm, or by subcontracting the production to a third party (outsourcing), that will be in charge of its control (Fratocchi et al, 2014). Apart from the cheap labour force or energy costs, companies defended their decision to offshore or outsource by locating their production closer to new booming markets they wanted to enter (e.g. China or South-East Asia), which means that some companies could also decide to locate their manufacturing processes in high wages countries. Besides, the workforce of these offshoring destinations has become increasingly skilled and specialised, making it advantageous for some companies to locate some of their operations in these areas, even when the wages are not that low (Piatanesi & Arauzo-Carod, 2019).

It is interesting to notice that Eastern European countries, former destinations for offshoring companies, are now offshoring operations of their own to lower wage countries. This phenomenon appeared after the accession of thirteen of these countries to the European Union and after the global financial crisis of 2007-2008 (Piatanesi & Arauzo-Carod, 2019). Indeed, wages have increased significantly in the EU newcomers and the cost differentials with Western European countries have therefore diminished (Eurofound, 2016).

After a few years or decades, some of these organisations decided to relocate part or all of their production to another country, which is known as reshoring. Reshoring can take two main forms:

1) Backshoring: It is defined as the movement of production back to the home country of the company. If the production was previously done by a third-party actor, it is then

referred to as insourcing (Ancarani et al, 2019), as the operations are re-integrated inside the organisation (Nujen et al, 2019).

2) Near-shoring: In this case, production is transferred to a location closer to the headquarters but not in the same country (Ancarani et al, 2019). For instance, it could be the case of a Western European firm that decides to near-shore manufacturing activities previously done in China to Eastern Europe or of an American firm that relocates them to Mexico.

Nonetheless, it should be highlighted that backshoring is still less common than offshoring and some large MNEs only bring back a small portion of the production they had previously offshored (The Economist, 2013; Dachs et al, 2019). *Baraldi, Ciabuschi, Lindahl and Fratocchi* (2018) called this "selective reshoring", referring to the selection of the activities to repatriate by the firms. They base their decision by evaluating how these activities fit inside the local operations.

Companies strive to find the ideal combination of locations of their different activities inside a network, after relocating different manufacturing activities, which is known as right-shoring. This ideal combination depends on several dynamic factors in the environment of the firm, including labour costs, exchange rates, tax systems, etc. It is then not static and can change over time, implying new backshoring decisions (Johansson et al, 2019; Martínez-Mora and Merino, 2014). Some of these elements will be developed below.

1.2. Analysis of the existing motives for backshoring before the COVID-19 pandemic

Basically, each decision to backshore production comes with unique motives, depending on the company. Quite often, managers do not want to acknowledge they made a mistake and will rather mention other motives to relocate production. Some experts say that backshoring is not due to a failure but rather the consequence of changing conditions (Albachiara & Malin, 2020).

1.2.1. Quality and flexibility issues

Nonetheless, some motives seem to stand out from the others. The two main reasons mentioned for relocating are:

1) A lack of flexibility of the supply chain against disruptions (e.g. unexpected rises in demand) or to customise and differentiate the product according to the customers' wishes. This requires a geographical proximity to the markets the company wishes to serve to ensure a short delivery time when there is a need for more flexibility and to avoid large inventories (Ancarani et al, 2019, Dachs et al, 2019). As a consequence, the range of products that can be manufactured can be widened.
2) The quality of the end product may not meet the firm's expectations (Ancarani et al, 2019). This can lead to high hidden costs of reworks if the customers are not satisfied. As a matter of fact, views on quality may differ depending on various cultural backgrounds (Leibl et al, 2011). It can then be beneficial to locate the production centres close to where the main customers are located (Dachs et al, 2019; Martínez-Mora and Merino, 2014), which means that if the company wishes to serve customers in Asia, the manufacturing processes can take place in Asia but if it wishes to sell in Europe, it could be located on the European continent.

It sometimes even happens that companies do not consider a location to establish their manufacturing facilities as it could not guarantee a compliance with the international quality standards (Joubioux and Vanpoucke, 2016).

Besides quality, cultural discrepancies between Asian and Western countries can lead to miscommunication and result in a failure of the offshoring process (Joubioux and Vanpoucke, 2016).

Moreover, there may be some unused capacity in the homeland, resulting from a diminished activity there. This free capacity comes with a cost and should not be neglected (Barbieri et al, 2019).

1.2.2. Cost motives

First of all , different cost elements could not have been well identified by the company before deciding to offshore or they could have evolved over time, leading to a reversal of the process (Leibl et al, 2011).

Besides, salaries in previously cheap labour force countries have been rising in recent years and the cost differential may have decreased. This makes it less profitable for organisations to perform their production far away from the markets they want to sell in (Stentoft et al, 2016). However, it was noted in some cases that when salaries were increasing in one place, production was not systematically moved back to the home country but could also be reshored to a less developed country with lower costs (Eurofound, 2016). This could be the case of a European company that had previously offshored some of its manufacturing operations to China and that decides to reshore them to a geographically close Southeast Asian country, such as Vietnam or Cambodia.

This trend is being enhanced as formerly cheap labour countries do not want to be seen as such anymore but are striving to base their economy on innovation. This is the case of a major actor in manufacturing, namely, China (Fjellsstrom et al, 2019). But some organisations may precisely decide to remain there for strategic reasons to invest in a place where new innovative developments are being made.

Furthermore, transportation expenses have also risen. This is another element that supports a more regional production. Companies could also decide to maintain their production facilities in a certain area to enter new markets close to this region, while bringing back part of their production for other regions (Joubioux and Vanpoucke, 2016). Long delivery times also require larger stocks with a higher cost that may not have been forecast before.

It should not be forgotten that production abroad is usually done with large batches and nowadays, to match customers' expectations, production is usually done in smaller batches. As a consequence, it can become unprofitable to produce far away from the markets to serve if it is not possible to manufacture large quantities at the same time (Martínez-Mora and Merino, 2014).

1.2.3.The influence of new technologies and innovation

Moreover, with the development of industry 4.0 technologies, such as automation, 3D-printing or digitalisation, it has become easier and cheaper for firms to produce closer to the markets they want to sell to. Indeed, these technologies require less labour by replacing it by machines. These technologies may then provide solutions to tackle the issues of cost, flexibility, quality as well as delivery time and reliability (Ancarani et al, 2019). However, there is a risk that

customers may refuse to pay a premium price if they know the products are manufactured thanks to these technologies and not thanks to a local know-how. It is important to mention that the expansion of industry 4.0 technologies may help companies to backshore but it does not mean that all firms that undertook backshoring will make use of them.

Several firms also highlight the fact that locating their production close to their Research and Development (R&D) centre can bring more innovation, even more if this centre is located in a specialised industrial cluster, and eventually lead to a higher product quality (Eurofound, 2016). It could then be beneficial for a country to draw Industry 4.0 policies to become more attractive for firms that could then undertake a move back home (Barbieri et al, 2019). Besides, new innovative products can be more easily protected with intellectual property (IP rights) inside their home country than abroad, where IP may not be understood in the same way than back home. And the people working abroad for the company may also be less loyal to the organisation than the ones who have been working for a long time in the home country to improve the production methods (Leibl et al, 2011).

1.2.4. Improving the company image

Another interesting motive mentioned by organisations operating in B2C markets to repatriate their production is the effect of the "Made in" labels. Thanks to these labels, the firms can charge a higher price to their customers, who then see the products as having a higher quality. It is the case in the fashion industry for instance (Mauro et al, 2018). *Mauro, Fratocchi, Orzes and Sator* (2018) analysed the causes of offshoring and backshoring in the fashion industry in Italy and they discovered that for high-value end products, the firms preferred to keep their production in their home country to take advantage of the "Made in" effect. Only the low-value end products were still produced abroad to keep the low cost competitive advantage but for their other segments, the firms decided to change strategies and to differentiate their products by producing them in Italy again to charge a higher price.

Martínez-Mora and Merino (2014) undertook another research in the shoe industry and came to a similar conclusion: the high and medium-high quality footwear production remained in Spain, whereas the more low-cost models were offshored. Companies kept the more value-adding activities in-house: product innovation, design, marketing. Nonetheless, some

companies in their sample backshored their whole production to focus on differentiation thanks to the "Made in Spain" label.

Backshoring can therefore serve as a way to increase value-creation in the eyes of their customers (Silvia et al, 2020). *Silvia, Simona and Bagozzi* (2020) also mentioned that customer animosity (CA) can negatively affect the perception of customers towards the host country where the products they buy are manufactured. They could disapprove with the working conditions in that country or the political regime and consequently decide to boycott products manufactured there, independently of the quality of the product.

Silvia, Simona and Bagozzi (2020) added that "(re)made in the home-country" campaigns can be useful when the organisation has the capacity to identify specific customer segments that want production to be backshored. This can trigger positive emotions among these segments by focusing on the home-country's strengths and pride. It will consequently lead to more success and sustainability of the backshoring decision.

Cassia (2020) also analysed this increase in customer's perceived product quality after a backshoring decision and she found that it was only present among consumers who were aware of the previous offshoring decision and who had significant levels of affective ethnocentrism (they prefer products manufactured in their own country than abroad). This decision did not have a significant influence on the other segments of customers (the majority of them).

It should not be forgotten that environmental concerns may lead companies to reshore part of their production closer to their home-base, either willingly if they strive to have a sustainable strategy or incited or forced by local sustainability regulations (Mauro et al, 2018). Focusing on sustainability can also be a new way to be competitive in a market where consumer awareness of environmental issues is growing (Fjellstrom, 2019).

Ethical concerns related to various practices: child labour, lack of social security and labour rights can also incentivise companies to bring back their production, as mentioned by *Bellego* (2014). Some countries such as China, India or Bangladesh do not guarantee the same ethical norms that can be found in Western countries (in the case of Bellego, in France). There is a growing awareness of the consumers regarding these practices, who can then put some pressure on the firms to improve the working conditions of their employees to make them more social. *Joubioux and Vanpoucke* (2016) highlighted the recent scandals that happened in some plants in low wage countries (mainly in the textile industry) and argue that the responsibility of MNEs needs to be changed.

Inside the organisation, the employees can feel that their company is promoting ethical values by deciding to backshore and consequently, they may react positively (Grappi et al, 2020). They will show more gratitude towards their organisation if they feel it decided to backshore due to intrinsic motives such as a consideration of the welfare of everyone inside society. It is then vital for the firm to communicate their backshoring decisions to the inside stakeholders, so as to make them aware of the strategy. Indeed, this can lead to a virtuous cycle of positive behaviours from the employees (Grappi et al, 2020).

1.3. Barriers to backshore

It should be highlighted that backshoring comes with some challenges as well.

For instance, after years of offshoring, there may not be a skilled workforce in the homeland as some competences have been lost in the process and the knowledge base has shrunk (Albachiara & Malin, 2020). And the employees at home demand higher salaries than the ones in offshore locations.

Nujen, Halse, Damm. and Gammelsæte (2011) also highlighted that skills, knowledge as well as infrastructure have been lost in the home-countries as a consequence of offshoring to third countries (Nujen et al, 2018). This makes the re-integration of previously offshored activities more challenging and the longer these operations were done by a third party, the more challenging it would be. Firms that wish to backshore then need to reinforce their internal capabilities and capacity to avoid being dependent on other stakeholders.

A knowledge base should be maintained within the organisation even during the offshoring period in order to be able to combine past knowledge with novel skills when they want to re-integrate some activities. Consequently, it should never be totally abandoned. Besides, the management should be dynamic to make sure that the new strategies are applied in their organisation, to foster knowledge-sharing and to openly communicate about the changes to their employees. The use of technology can be complementary to both the knowledge base and the management involvement to facilitate the re-integration of manufacturing activities in countries characterised by high costs. The staff should be trained to efficiently use these new technologies (Nujen et al, 2018).

1.4. New challenges brought by the COVID-19 crisis

In this section, the two opposite moves of production will be analysed: Should supply chains be backshored to avoid shortages or should they be adapted without going back to the home countries ? Each case comes with various arguments.

1.4.1. Towards more backshoring ?

Barbieri, Albachiara, Stefano, Luciano, Matteo, and Samson (2020) suggest that the current Global Value Chain (GVC) model is likely to be hit after the COVID-19 crisis. Indeed, many countries and authorities raised concerns that they were too dependent on a few countries (mainly on China (The Economist Intelligence Unit, 2020)) for specific products (face masks and similar personal protective equipments, medical devices such as ventilators) and they suggested bringing part of the production home to decentralise the manufacturing capacity (World Economic Forum, 2020). *Evenett* (2020) mentioned a practical action taken by the American authorities to substitute import by local production, namely by offering financial incentives to firms that would relocate some manufacturing activities within the national borders.

They point out that COVID-19 may be a trigger for a surge in backshoring to reduce risks, especially for decisions that had not been made yet but were already considered before the crisis. It does not mean that companies would stop producing abroad but they could decide to implement a back-up production in their homeland to tackle disruptions. Foreign direct investments that were due to happen may be delayed, undermining the economies and industries that rely the most on GVC trade. The pandemic could therefore stimulate already existing trends among companies to favour reshoring and decoupling (making the links of a firm with the GVCs less strong) in order to make their supply chains more resilient (UNCTAD, 2020).

Falls in demand damped many of the world economies in 2020 after the COVID-19 outbreak, even for countries that recovered more quickly than others, such as China, as they are dependent on exports and the demand abroad had totally collapsed (World Economic Forum, 2020). This was a clear proof that economies are highly connected with each other, which was an asset during normal times but a liability during the crisis.

At the European level, flaws were uncovered in the pharmaceutical value chains (Directorate General for External Policies of the Union, 2021), with some products such as active pharmaceutical ingredients (APIs) posing a threat as they are predominantly manufactured outside the European Union. They then forecast that GVCs for these products may become shorter as a result of the COVID-19 crisis (Directorate General for External Policies of the Union, 2021).

Besides, long-term factors should be taken into account to build a strong strategy (Barbieri et al, 2020). Most companies mentioned some actions to be taken in the short-term as a response to the disruptions in the midst of the crisis but when the situation gets back to normal, they may not fundamentally change the way they operate their production. However, monitoring supply chain resilience with enough stocks and maintaining a flexible storage capacity should last longer than the crisis (The Economist Intelligence Unit, 2020).

Some experts argue that automation and other technologies such as 3D-printing may become essential in tomorrow's GVCs as they proved to be incredibly useful at the height of the pandemic. Besides, automation drastically made labour costs less relevant than before, making it easier to produce closer to home (Javorcik, 2020). They point out that the COVID-19 crisis may be an opportunity to redesign the GVCs in light of the vulnerabilities that were uncovered to make them more efficient in the future (World Economic Forum, 2020).

1.4.2. Or towards no change in terms of backshoring ?

Miroudot (2020) makes a difference between the resilience and the robustness of GVCs. While the former refers to their capacity to recover quickly from disruptions to resume production, the latter refers to the capacity of resisting to shocks and disruptions and maintaining their functions. He considers that during the COVID-19 crisis, some GVCs may not have been robust, but they certainly were resilient as they had been able to start again fast enough. The word resilience, often mentioned by policymakers, would then, in his opinion, be out of place to define the issue at stake.

Miroudot (2020) argues that bringing production back to the home-country does not improve resilience in itself and could in fact be counterproductive. Besides, he acknowledges that economies are interdependent but he highlights that it is how they can grow and that reducing these interdependencies would reduce the countries' incomes and make them more volatile.

On the contrary, *Miroudot* (2020) insists that new policies should strive to improve GVCs instead of trying to dismantle them. First of all, the various vulnerabilities of the GVCs should be analysed to see what did not work well during the first stages of the pandemic. The existing business literature should be used to avoid making decisions that have been proven not to be the most efficient ones. He points out that resilience is built at the firm level and that governments should therefore question themselves to see what it means for them at a national or global level to build resilience so as to efficiently strengthen it.

Miroudot (2020) mentions that European countries are more dependent on the supply chains inside the regional market than on China, while these same countries are the ones that advocated the most for backshoring during the pandemic and their GDPs are the ones that decreased the most after the crisis. In his opinion, governments should consider whether domestic supply chains are really less vulnerable than international ones before making any hasty decision that could actually create more volatility. Indeed, domestic production does not mean that risks will disappear (bankruptcies of suppliers can still happen and cyber risks are still present as well). Besides, firms could lose some benefits of producing in international networks if they decide to backshore too quickly.

Though he acknowledges that there were some disruptions at the beginning of the crisis in China, *Miroudot* (2020) does not consider it as an exceptional event as it had already happened in the past with natural disasters in other countries for instance. He points out that firms are already more prepared to face such risks thanks to their risk management strategies that allow them to reduce the effects on their production processes (be it with alternative suppliers or partnerships, stocks). And China opened up again faster than other countries, which enabled a quick return to normal.

The often-mentioned case of personal protective equipment (PPE) was indeed a surge in demand never seen before (Miroudot, 2020) and many countries were not producing them at the time, which led to a global supply chain issue. Hence the argument that countries were too dependent on China (where 50% of the production was taking place) but China itself was facing shortages in its own country. *Miroudot* (2020) then argues that the best way to cope with such a surge is to quickly boost production to meet the demand and not to blame the place where production is taking place. As a matter of fact, he argues that international sourcing from China may actually have turned into the solution to this surge instead of being an issue as the country massively exported PPEs all over the world after ramping up its production.

However, *Miroudot* (2020) highlights that a major issue during the crisis was linked to transportation. It quickly became more expensive and complex for firms to move goods across borders due to tensions in transport services and stricter border controls led to delays. But this was largely due to measures taken by the governments themselves and not to the GVCs. Therefore, he argues that authorities should strive to keep border processes fast and safe even in such times to maintain trade functioning. Governments are the ones that can set the rules to enhance the agility of the firms by limiting the amount of red tape for instance and reducing uncertainties. *Strange* (2020) also mentioned that a necessary condition for GVCs to work efficiently is to guarantee the free movement of goods and services, human beings and capital all over the world.

Jain, Girotra and Netessine (2016) discovered that supply chains based on redundancy (sourcing from different suppliers) may actually be less resilient than supply chains with only one supplier. They argue that long-term relationships make suppliers more committed to react to disruptions to help their partners, with which they are also more integrated. *Miroudot* (2020) therefore argues that redundancy in sourcing, holding large inventories or keeping some free capacity may be too costly when it comes to very unlikely events. In his opinion, GVCs should be more flexible and agile to reallocate production when necessary to other factories but avoid duplicating unnecessary capacity or suppliers.

A concrete measure to probe companies' resilience was suggested by *Simchi-Levi and Simchi-Levi* (2020) with "stress tests", at least in critical industries. These tests would evaluate whether a firm would be able to recover quickly from disruptions by being able to quickly increase its production or if the level of stock is enough. Their methodology is based on two principal elements: time-to-recover (i.e. how long does it take for a node in the supply chain to be fully functional after the disruption) and time-to-survive (i.e. how long can the supply chain continue to satisfy the demand). The time-to-survive should be higher than the time-to-recover to avoid shortages. *Simchi-Levi and Simchi-Levi's* approach (2020) allows firms to evaluate the cost of disruptions in various scenarios and to develop mitigation plans for the most vital nodes of their supply chains. Organisations could also cooperate to improve the way they prepare against risks and the authorities could incentivise companies to draw more resilient supply chains by asking them to report their ability to cope with disruptions under specific scenarios.

Eppinger, Felbermayr, Krebs and Kukharskyy (2021) analysed whether decoupling from GVCs to rely more on a national production could decrease the risks related to shocks and

improve the welfare of the consumers. They found that no state would benefit from a full decoupling from GVCs (be it global or unilateral by one country) as it would not drastically improve their resilience against foreign shocks. Besides, they point out that the losses in terms of welfare would be even more significant for small and highly integrated economies, such as Luxembourg, Malta and Ireland. On the other hand, economies that would suffer the least are the ones of large states whose openness to trade is relatively small, i.e. the US and China. But, it should be highlighted once again that it would not be beneficial for them either (Eppinger et al, 2021). Therefore, they do not recommend to decouple countries from GVCs as the losses would outweigh by far the benefits of a reduction in the risks linked to international disruptions.

In conclusion, *Miroudot* (2020) considers that massively resorting to backshoring now would be premature and would not be the ideal solution. *Policy Links* (2020) also points out that the current evidence is not enough to justify hasty decisions to reshore. *Strange* (2020) adds that any future pandemic could also influence domestic production and that diversification in global sourcing (to reduce the specific risk of a particular country to instability for instance) helps improve the resilience of a firm. Nonetheless, *Miroudot* (2020) acknowledges that the COVID-19 crisis could enhance a shift in the way GVCs are organised due to other major events such as climate change or the rise of digital technologies.

1.5. Towards a new paradigm of regionalisation ?

Vidya, Prabheesh and Sirowa (2020) mentioned that economies started to become more regionalised after the 2008 global financial crisis, creating some economic clusters and reducing international trade with countries outside the region. This trend was even exacerbated by the trade war between the United States and China. They highlight in their findings that trade integration has been on the down slope and that it had become less centralised than in the past.

The Economist Intelligence Unit (2020) predicted that regionalised supply chains should increase as a consequence of the COVID-19 crisis. However, they mention that this regionalisation of supply chains, along with the larger inventories to hold, may increase the final prices of goods, which will reduce their competitiveness. But, an opposite effect could be observed if firms can focus more on product differentiation to satisfy local tastes, leading to higher prices.

According to *Rugman and Verbeke* (2004), globalisation, considered as a proportional distribution of sales across the main markets of the world (the US, the EU and Japan, referred to as the triad) is not a common feature among MNEs. Indeed, they only found 9 MNEs that could be considered as global, the very large majority of MNEs being home-regional (84.2% with their criteria). They argue that a firm specific advantage (FSA) is usually limited to one location and cannot be easily deployed across the other markets. Moreover, to make significant economies of scale or scope, organisations would require FSAs that are not limited to only one location. And they highlight that firms can already be sufficiently profitable if they expand inside their own region, it is not necessary to expand all over the world.

They argued that there is neither a full integration of the world economy (globalisation) nor a full fragmentation in national markets, but instead, what *Ghemawat* (2003) called semi-globalisation or regionalisation. There are some local specificities that make it impossible to offer the same product globally and companies need to act regionally to meet their customers' expectations.

According to the transaction cost economics, companies wishing to sell their products abroad need to evaluate what mode of entry is the best-suited depending on the country's specificities. Investing in a manufacturing facility through FDI is often the preferred way when exports are made harder through tariffs or when licensing is too complex or costly (Rugman and Verbeke, 2004). But many MNEs prefer to have global production centres where they concentrate their manufacturing processes and then export the goods afterwards to the markets they want to sell into. They try to capitalise on the similar factors between some markets instead of adapting to each market to add value to their products. But *Rugman and Verbeke* (2004) argue that firms would add more value through a process of internalisation arbitrage to take advantage of each market's specificities. MNEs will be more successful internationally if they can efficiently align their own specific advantage with the one of the foreign market they want to enter (Rugman and Verbeke, 2005).

Rugman and Verbeke (2008a) also analysed the case of services, that contrarily to goods, cannot be stored. They found that services MNEs based on knowledge had more chances to be successful abroad than the ones that are capital-intensive. However, they pointed out that cultural differences between the home and the host-countries are a leading cause of failure and recommended that firms should adapt as much as possible to local culture to attract customers.

MNEs can also decide to cooperate with local firms to get insider knowledge and best practices on how to deal with each stakeholder (authorities, workers, customers…).

But *Rugman and Verbeke* (2008a) also noticed that FDI in services industries is usually more aimed at entering a local market than in manufacturing industries. Services would then be even more linked to a specific region, both for the production and the sales activities, as global homogenisation is not very common.

For a firm to become truly global, its management should be selective in how they expand geographically overseas with a narrow focus at the beginning instead of trying to expand as quickly as possible to a very large set of countries (Rugman and Verbeke, 2008c).

Rugman, Li and Oh (2009) found that most MNEs with a home-regional strategy in terms of sales consequently have their supply chain in the main region where they sell their products. Therefore, both their upstream (production) and downstream activities (sales) would be located in the same region (i.e. regional), but they could not prove that regional upstream activities led to a higher performance.

Rugman and Verbeke's findings were criticised by *Osegowitsch and Sammartino* (2008) as being too strict with the thresholds they put for a company to be considered as global or regional. They argue that limiting the classification of global firms to those that make less than 50% of their sales inside their home-region excludes too many companies that could become global by selling only a little more outside their home-market. They point out that choosing other thresholds would uncover more bi-regional and global firms than found by Rugman and Verbeke.

Rugman and Verbeke (2008b) responded by saying that most MNEs had regional strategies and structures (e.g. geographic divisions) as it is impossible for them to have a fully global one to answer heterogeneous needs. They consider this as a proof that large organisations do not specifically operate in a global way but adapt to the regions where they sell, while usually making most of their profit in their home-region. They highlighted that changing the thresholds would not lead to a very significant change in the amount of firms being global.

Oh and Rugman (2014) used data on the world's largest MNEs that covered the years between 1999 and 2008 to provide a broader view on trends during a larger period of time (and not only during one year as done before). They confirmed that very few companies had changed their home region-based strategy into a global one according to their criteria: there were 9 of them

in 1999 and 22 in 2008. About 80% of all firms were still home-regional in 2008 (435 in their sample) but they insist that trade is becoming more international with an increase of six percentage points inside the home region (and excluding the domestic market) but not more global as this trend does not extend to outside the region. They concluded that the results on a 10-year period were similar to the ones of the study conducted with data from 2001 by *Rugman and Verbeke* (2004).

Rosa, Gugler and Verbeke (2020) analysed the past findings of Rugman and Verbeke with more recent data to see whether the amount of MNEs becoming global in terms of sales had increased since the earlier works of Rugman and Verbeke. Surprisingly, they found that 36 MNEs could now be considered as global (as opposed to 9 in 2004), and that the amount of bi-regional and host-regional companies had also increased (respectively, from 25 to 39 and from 11 to 25). It could then be argued that globalisation is on the rise among the largest firms of the world. Nonetheless, it appears that the majority of large organisations is still home-regional, corroborating the fact that semi-globalisation would still be present in the business world.

An interesting point made by the authors is that the former classification made by Rugman and Verbeke with thresholds based on three regions may also be outdated as it does not take into account Africa, Latin America and the Middle East. As a consequence, more MNEs could actually be global in terms of sales but in the classification made by Rugman and Verbeke, they fail to reach the 20% thresholds in the two other regions of the triad than their home base. They also pointed out that using more loose thresholds (e.g. remove the 50% limitation for home-regional sales), as suggested by *Osegowitsch and Sammartino* (2008), could lead to dramatically different results. However, they are not convinced this would be relevant to describe how firms really go global.

Rosa, Gugler and Verbeke (2020) also took into account the possible consequences of the COVID-19 pandemic on supply chains. They foresee, with caution, three main impacts on the MNEs' strategies for the future:

1) The reshoring trend could accelerate as firms discovered flaws in their supply chains that made them vulnerable. Regional factories to supply the local markets could become more common, instead of having a global hub to serve all markets around the world. Consequently, less organisations will be considered as global in terms of sales in a few years.

2) Supply chains will become more regional, with less inter-regional connections than is the case today, leading to more autonomy and control for each region. However, this would imply a major step backwards regarding the advances of digitalisation, that was going in the exact opposite direction.
3) In a more regional scenario, firms operating outside their home-base will also have to find partners they can rely on to execute tasks in sensitive industries. These industries, such as public health and safety, need a specific protection to avoid any risks.

In a nutshell, the future is very uncertain but it seems conceivable that changes in the way business is done are to be expected.

Methodology

As the issue of backshoring after the COVID-19 crisis is still very novel, very little research has already been published on the topic. Therefore, I decided to pursue a theory-building approach to bring new insights as defined by *Dul and Hak* (2008) and *Eisenhardt* (1989) in the case of a trend with very few empirical evidence or existing literature.

I conducted four qualitative and in-depth semi-structured interviews with several stakeholders directly involved in the issues related to the topic. As mentioned by *Eisenhardt* (1989), it is considered necessary to conduct between four and ten interviews to allow for theory-generation and a generalisability of the results, which is the case. The respondents were chosen for their convenience (they are all based in Belgium and speak either French or English) and their high likelihood to have a relation with the topic, as recommended by *Dul and Hak* (2008). They are indeed all directly in contact with companies affected by the COVID-19 crisis as they are representative of trade associations at the Belgian and European level in sectors that were strongly hit. Due to the pandemic restrictions, all the interviews had to be held online. They took place between the end of March 2021 and May 2021, roughly one year after the COVID-19 outbreak was considered a pandemic on the 11th March 2020.

The information that could be gathered therefore consists of more well-considered and not hasty decisions made amidst the worst times of the crisis. However, the respondents highlighted that most companies are still reflecting on how they should adapt their global supply chains and institutions such as the European Commission are currently working on the policy side, which made it difficult to receive clear answers on certain topics as all the results are not available yet. Some people also refused to answer the questions as they were working on their own position paper at that very moment and considered it was too soon for them to give definitive answers.

Nevertheless, the findings still seem consistent, with many lessons to be learnt from this crisis to be better prepared in the future.

The round of interviews started with the Federation of Enterprises in Belgium (FEB-VBO), giving a broad view on the state of the industries in Belgium. Two sectors that were particularly impacted during the crisis were mentioned in the media: the technological and the pharmaceutical sectors. That is why, the interviews then continued with Agoria, the federation that unites all technology-inspired companies in Belgium; with EFPIA, the trade association for the European health and pharmaceutical industry; and with EFCG (European Fine

Chemicals Group), a subgroup of CEFIC (the European Chemical Industry Council) regrouping the European producers of active pharmaceutical ingredients (APIs), excipients and their raw materials.

The results of the interviews on the main topics discussed with the respondents will first be presented. This approach is in line with what *Eisenhardt* (1989) called a within-case analysis, in order to find out the unique elements of each of the interviews. After that and with the help of Grounded Theory (Dul and Hak, 2008), the data from the four cases will be compared through coding (done by hand as no access to the software NVIVO was granted) to elaborate on the new concepts. This cross-case confrontation will allow us to find similarities and to make generalities. The new concepts will then be thoroughly defined after they have been discovered to try to find causal relations between them (the independent concept being the COVID-19 crisis).

Finally, the data collected during the interviews will be compared with the knowledge from the literature to test the internal validity of the data set, as explained by *Eisenhardt* (1989).

Presentation of the results of the interviews

2.1. Topics and issues related to the COVID-19 crisis highlighted by the interviewees

In this section, the respondents mentioned the various difficulties encountered by the companies at the height of the crisis, be them related to GVCs or not.

2.1.1. FEB-VBO

Several challenges were highlighted by the expert at FEB-VBO regarding the consequences of the COVID-19 crisis. First of all, the main question for all companies was "How are we going to survive?" and most of them were surviving thanks to the state's financial help but the risk of bankruptcies will be very high after these aids stop.

However, the federation asked its members whether they were considering reshoring in the near future and overall, they do not predict a massive wave of reshoring in any sector. They acknowledge that there were some shortages of raw materials due to delays after factories had to be closed in China at the beginning of the crisis (China was the first country to be hit by the COVID-19 outbreak) or due to a lack of free containers. But it is, in their opinion, no proof of a dependence on that country. They do not support the current view of European leaders that the continent is too dependent on GVCs and on its overseas suppliers, as they say it was not a deliberate action by one single country to reduce its exports but a consequence of a crisis that was impacting all countries.

What is more, the federation pointed out that even the European Single Market (ESM) suffered after the unilateral decisions made by some Member States to close their borders, resulting in many delays due to queues of lorries waiting to cross the borders. It was a proof that European economies are very interdependent and vulnerable to such risks of unilateral border closures, which restrict the free movement of goods between Member States of the Union. Even seasonal and cross-border workers faced difficulties to go to their place of work. Fortunately, the European Commission took action to set up green lanes to reduce the time truckers had to spend at the border checks. And in the opinion of the federation, this is something to be remembered to make the ESM work effectively even during a crisis.

According to the FEB-VBO, there is only one exception to be mentioned, and this concerns a few sub-sectors of the health sector: some generic medicines, hand gel, face masks… But they insisted that European leaders have been exaggerating when using the anecdotical example of Paracetamol to argue that Europe was overly dependent on GVCs.

2.1.2. Agoria

The technological federation in Belgium mentioned disruptions in the continuity of the production processes after factories had to close in China and elsewhere. Even the ones that could stay open were facing issues because they were not receiving enough raw materials or parts to keep producing. The federation's first goal was therefore to reopen industries all over the world to enable the value chains to fully resume. But one of the major issues they were facing was uncertainty because they did not know what was going to happen.

Besides, it was not always easy to reopen certain sectors and some of them did not even exist. For instance, the fabric to manufacture the face masks was not available in Europe, so it took some time before companies could start producing them.

2.1.3. EFPIA

One of the main challenges faced by the pharmaceutical industry during the first wave of the COVID-19 pandemic was a surge in the demand for ICU medicines and no one knew which one of them was the most efficient at that time so they were trying to use existing medicines to cure the patients.

Besides, governments decided to close their borders and led nationalistic strategies, so they kept the medicines they had in their country for themselves. In the eyes of the trade association, there has never been a shortage of ICU medicines at the global level as the global supply had always been higher than the global demand. However, there were local shortages as the pandemic made it more difficult to distribute the medicines in the areas where they were needed or governments of other countries simply did not want to send them to another country.

2.1.4. EFCG

The expert at EFCG insisted on the importance to understand the pharmaceutical supply chain. For a more visual explanation, please refer to figures 1 and 2.

It shall be emphasized that medicinal products consist of two types of ingredients:

1) The active substance, also known as active pharmaceutical ingredient (API). Active substances are the entity responsible of the efficacy of a medicinal product.

2) The excipients are the inactive parts of the medicinal product. They are added to the active substance to create the pharmaceutical finished dosage form. They have different functions. For instance, some are used to change the taste, others to prolong the effect of the active substance, to increase the solidity of the dosage form or to target a specific organ.

To synthesise active substances and excipients, different raw materials are used (they can either be regulated or non-regulated starting materials). Depending on the number of ingredients entering in the manufacturing process and the number of steps involved (various intermediates before producing the final API), the production of the medicinal product can be quite complex before the final dosages can be distributed to the hospitals and pharmacies through wholesalers in order to be administered to the patients. Figure 2 below illustrates this complexity through the metaphor of an iceberg.

It should be noted that all these elements are globally sourced with manufacturing processes taking place all over the world. EFCG highlighted that 75% of the whole API value chain takes place in Asia (i.e. China and India), not necessarily the finished APIs but all the steps happening before (i.e. the intermediates). In the case of generics (medicines that have become off-patent), this percentage is even higher. It is essential to mention that even India is dependent on China for 68 to 70% (Politico, 2021) of the raw materials it needs to produce its APIs. Consequently, when Europe is dependent on India for one element, it may also be dependent on China that supplies the raw materials to produce that element.

The article by *Carlo Martuscelli* in Politico (2021) explains that these dependencies have emerged due to the very cheap workforce in these two countries and the scale economies they can make thanks to their enormous national markets.

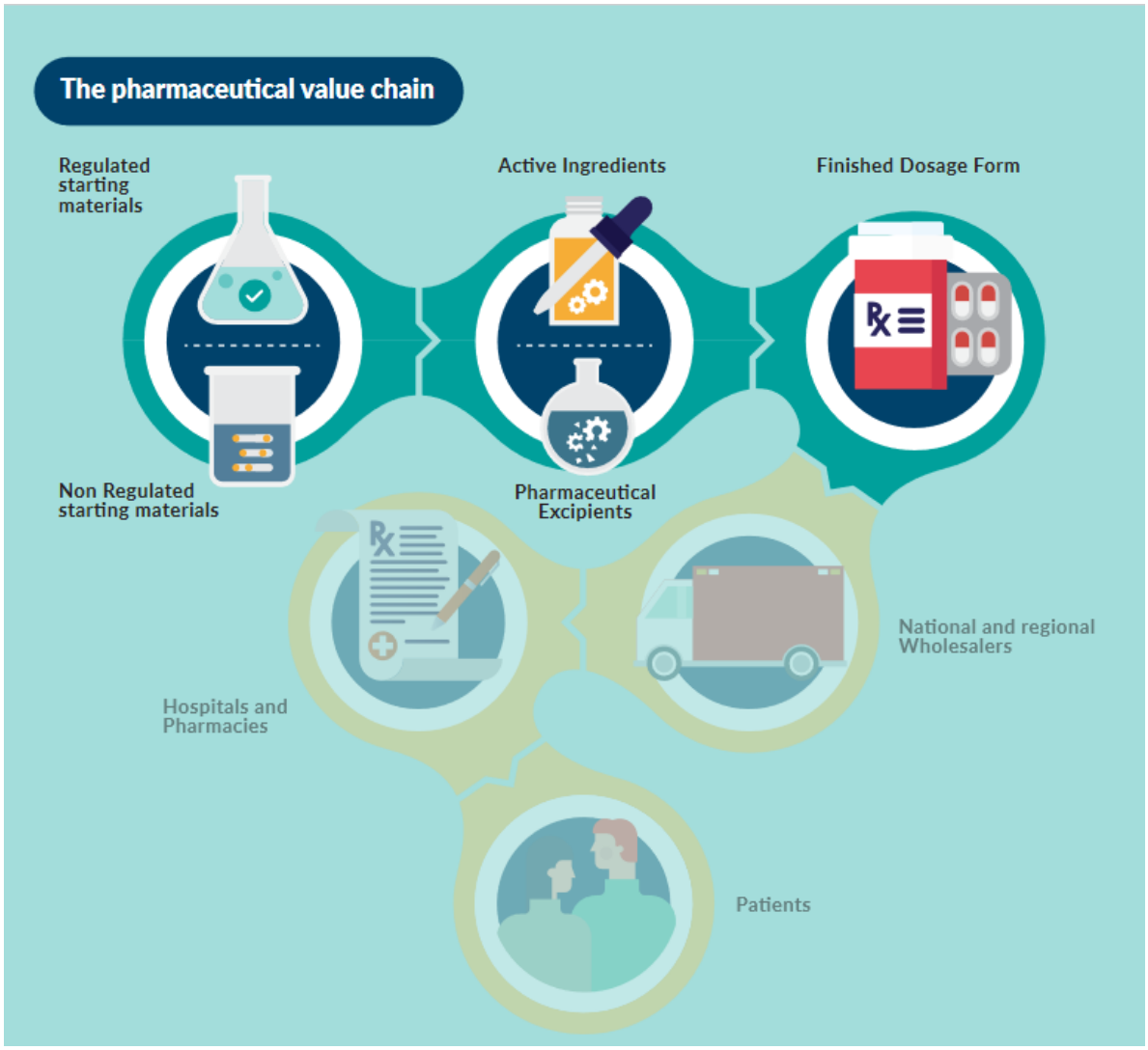

Figure 1: The pharmaceutical value chain (EFCG, n.d.)

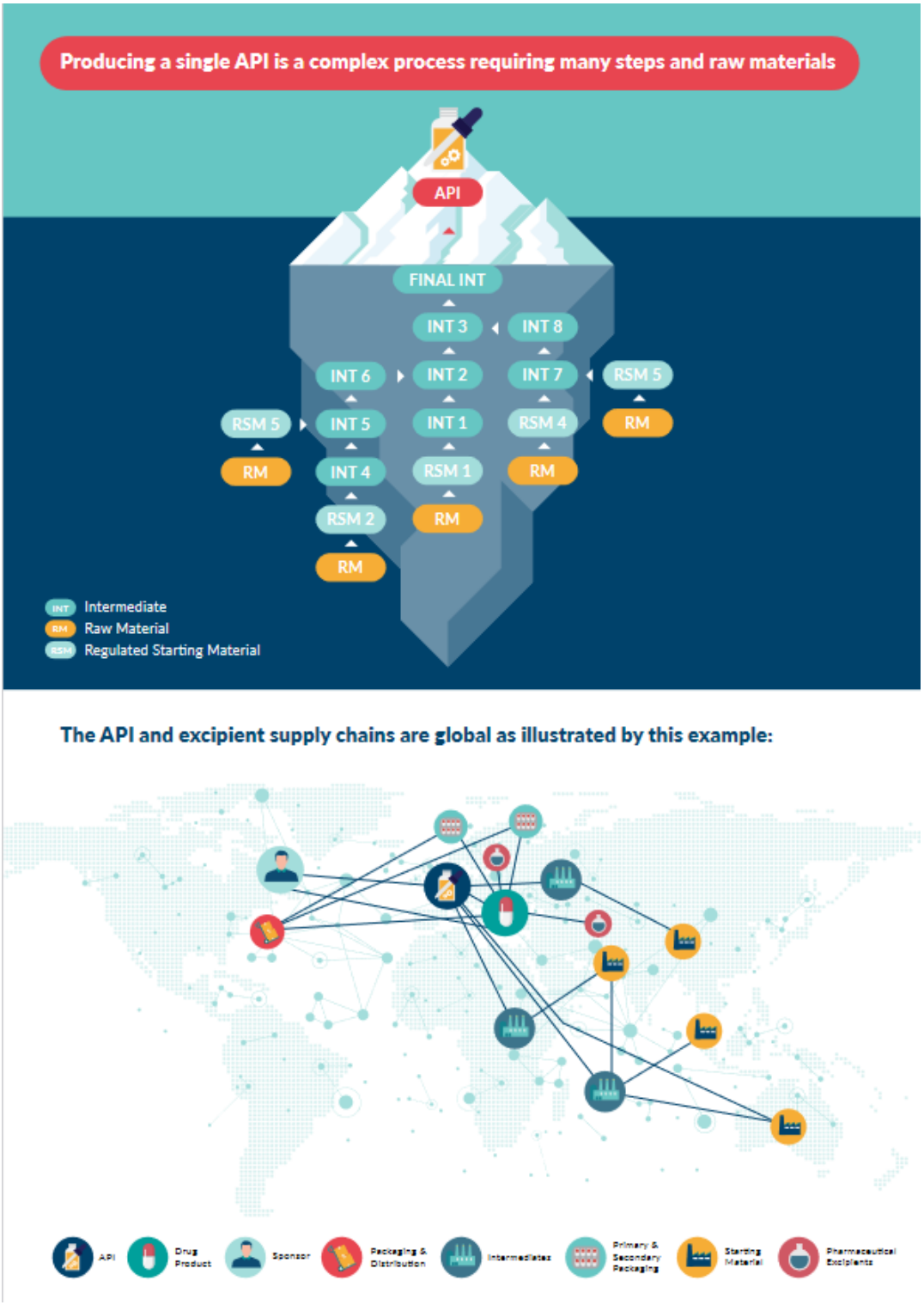

Figure 2: The complexity of the API supply chain (EFCG, n.d.)

The expert at EFCG pointed out that everything had been working well until very recently but they had already warned the European Commission in 2019 about these dependencies due to the closure of industrial plants by the Chinese authorities for environmental and pollution concerns. EFCG argued that Europe needed back-up plans on its soil in case of an emergency, the same applies for the United States. In 2020, the system had to face its worst-case scenario with the COVID-19 pandemic. But they insisted that COVID-19 was not the triggering element of the problem, it just highlighted it and made it worse.

Indeed, demand for some medicines skyrocketed (for instance with Paracetamol), while it was not possible to ramp up production fast enough as weeks or even months were needed to do so. The expert pointed out that planning is crucial as there are so many steps to manufacture the end product (synthesis of the API, assembling with the excipients …). That is why, production cannot be increased that fast. And some processes are so complex that only a handful of companies can make them (e.g. with the mRNA vaccines). Permits also need to be delivered to companies that want to produce more medicines but the Commission acted on that to accelerate the process for COVID-related drugs. But increasing the capacity for one medicine consequently decreased the capacity for other ones, so choices had to be made.

2.2. What did companies put in place to react to these challenges ?

2.2.1. FEB-VBO

The federation insisted that GVCs were part of the solution rather than a cause of more problems during the worst times of the crisis, as it enabled countries to diversify their exports and their imports to make use of different suppliers if one of them was closed or to find new markets to sell their goods. According to them, GVCs were resilient as they were able to return quickly to their initial state. They suggested that the EU should continue to sign free trade agreements with new partners to be more diversified.

At the business level, some firms decided to reassign production lines at the height of the crisis to manufacture necessary medical goods, such as hand gel or face masks. This was largely covered in the media but all companies had to be more flexible and agile to integrate new ways of working (teleworking…) and to cope with the supply issues.

2.2.2. Agoria

In their "Manufacturing Matters" study (2021), in collaboration with the University of Antwerp, the federation interviewed twenty-five managers from the technological sector on how they coped with the new challenges brought by the COVID-19 crisis. Several findings can be highlighted:

1) They had to rethink their organisation's strategy, with a long-term vision and a specific approach for the immediate needs linked to the crisis.
2) The lack of uniformity in terms of measures taken by the EU Member States to tackle the spread of the virus also accounted for some more complexity for companies that were operating abroad and had to manage with different restrictions. Authorities should try to be more coordinated to facilitate economic recovery in the future. Besides, demand was very volatile during the worst times of the crisis, leading to unexpected peaks that some companies could not satisfy.
3) Companies that had many operations abroad also encountered difficulties with intercultural differences when they had to communicate digitally and they had to take into account the importance of hierarchy, cultural and national standards, depending on the country.
4) Firms that had already prepared to become more agile navigated more easily through the crisis as it was easier for them to adapt the way they work to react to a changing environment. They considered it was an advantage for them to be more resilient and it should encourage other companies to include agile principles into their own organisations. Lessons need to be learned and best practices on how to cope with such a crisis should be shared between all stakeholders to improve the way they respond in the future.
5) The crisis urged companies to accelerate their digitisation of processes to include more of their activities. All employees (junior and senior ones) should be taken into account to make sure this process is well-received and understood.

The report (Agoria, 2021) also indicated that R&D budgets had decreased as a result of the financial impacts and the uncertainty brought by the crisis, consequently stopping or postponing some research processes. This was damaging for the future innovation capabilities of many firms.

2.2.3. EFPIA

Regarding the vaccines, pharmaceutical companies were able to develop them very quickly thanks to past research and innovation that had taken place in the US and in Europe. Indeed, the mRNA technology had already been researched with past outbreaks such as Ebola or SARS-1, so the companies could make use of this technology to quickly bring a vaccine to the market for SARS-2. Besides, health regulators facilitated the processes to get the regulatory approval along the different stages to bring the vaccine to the market faster.

But EFPIA deplores that government often simplistically ask the pharmaceutical industry to ramp up the production of vaccines while it takes at least three months to produce them. What is more, vaccines are made up of a large array of components (e.g. 280 in the case of Pfizer's vaccine) coming from different parts of the world. Thus, it is a very complex process that cannot be done so quickly. In the case of Pfizer, they have two production centres, one in the US for their own market and another one in Belgium for the rest of the world but they are limited by the amount of raw materials they receive or by the quantities of APIs they can produce elsewhere. As a matter of fact, some of these raw materials and APIs are needed for other medicines used to treat cancer, diabetes or malaria. So, the real issue is not a dependence of one country on another but rather a risk that existing medicines would have to compete with the new vaccines, otherwise, there would be shortages of these other drugs.

They also mentioned that governments were sometimes not aware of what had to be considered as critical goods and closed factories indistinctly at the height of the crisis. For instance with Philips, that had to reopen its factories because they were producing essential components needed for the final assembly of ventilators, used to cure COVID patients. There was therefore a lack of understanding from the governments and politicians of how the industry worked.

2.2.4. EFCG

Overall, the expert applauded the way the Commission dealt with the situation at the height of the crisis by holding weekly meetings to discuss the issues and find solutions together, which contributed to a better outcome.

2.3. Changes in the way GVCs work after the COVID-19 crisis

2.3.1. FEB-VBO

At the public level, the federation mentioned that the governments were not prepared at all and had been less resilient than the private sector. For instance, they were not taking into account the complexity of supply chains with different suppliers involved in the manufacturing of a product (e.g. with medicines, the need to print the user instructions or the packaging). They suggest that the authorities should launch an in-depth risk analysis to be better prepared in the future against various types of risks and scenarios (sanitary, environmental, natural disaster, cyberterrorism) and have back-up plans, as these risks may also become more frequent due to climate change.

Regarding the cost issue, already present before the crisis, the federation acknowledges that firms wish to be located where labour costs are not too high but what was outsourced or offshored are usually low-value activities. More value-adding activities such as product design, research and development, innovation or marketing are usually kept in-house in the home-country, which is more interesting for Western countries, where it has become almost impossible to be competitive on certain low-end activities. Belgium, for instance, usually focuses on niche activities and has developed an expertise in these areas. It is a small and very open economy, more than 80% of its GDP comes from exports and it would not be beneficial for the country, nor the continent, to conduct a protectionist strategy, in the opinion of the federation.

2.3.2. Agoria

The “Manufacturing Matters” study (Agoria, 2021) stated that reshoring may become more common in the industry but raw materials are not always available in Europe, it will therefore not be a likely solution for all firms. For the time being, it has not been observed that companies are massively changing suppliers or considering doing so, as strong partnerships take time to build and breaking one of them implies going into the unknown.

Finally, the report mentioned that many jobs will have to be created in the future to follow the pace of growth and replace the jobs lost during the crisis. As a consequence, a skilled workforce

will be needed. Training and lifelong learning will have to be incentivised and strengthened to keep employees' competencies in line with the market's and the companies' needs.

2.3.3. EFPIA

The association does not support the export authorisation scheme designed by the European Commission, that tends to prioritise its own citizens. The risk being that other countries or regions would retaliate against Europe, which would be damaging. That is what happened when India blocked the exports of Astrazeneca vaccines produced on their soil after they saw that Europe had previously blocked vaccines of the same company to be exported to Australia. Europe should set an example if they want other countries to play by the rules.

The association stressed that there was not one sole issue for the industry but a combination of many factors. And what they particularly do not want is more barriers, such as tariffs, that would complicate the export of PPEs or the COVID medicines.

2.3.4. EFCG

They are now reflecting on how to make the supply chains more robust by analysing their vulnerabilities and by listing critical medicines that should have back-up plans on the European continent. They found out that for nine out of the ten most-sold APIs in the EU (including Paracetamol and Aspirine), 80% of the whole production process was taking place in Asia. It became a problem at the height of the COVID-19 crisis when India blocked the exports of Paracetamol and its raw materials. Besides, they are investigating what kind of innovation will be needed in Europe to produce these medicines in Europe as many technologies are no longer available in the continent, while taking into account the green and digital transitions. The final conclusions will be made available around October 2021.

On May 5th 2021, the Industrial Strategy for Europe was released by the European Commission. It mentions six strategic sectors (APIs, raw materials, lithium batteries, hydrogen, semiconductors and cloud and edge computing) that need specific measures to structure the supply chains and make them stronger (European Commission, 2021). For these six critical industrial areas, Europe relies heavily on a few countries outside its borders, which makes it

vulnerable to any potential export restrictions from these countries that could disrupt the supply of vital goods in times of crisis (European Commission, 2021).

2.4. Opinion on backshoring

2.4.1. FEB-VBO

The FEB-VBO mentioned that a few individual companies decided to reshore part of their manufacturing activities, but according to them, it is part of these companies' strategy and not of a larger scheme of reshoring among a specific sector. They insisted that relocation should not be imposed to companies but, if the European Union wants it, they should rather make the business environment more competitive with a smart industrial policy. This includes good infrastructure, reasonable energy costs, a skilled workforce. Industrial alliances should also be incentivised to avoid having champions coming from the largest countries of the Union, leaving no room for the smaller Member States.

2.4.2. Agoria

They argued that it might not be beneficial for all companies in the sector, as some of them have been located in a specific geographical area for a very long time and have created deep relationships with their suppliers, sometimes co-creating some products together. Deciding to move the whole production back to the home-country could also impact the volumes of production and eventually increase the prices. And some MNEs have several plants across the world, each of them manufacturing a different product. For instance, in the car industry, they could produce a different model depending on the plant to make economies of scale.

They stressed out that there were still issues in the semiconductors industry, even when the interview was conducted in April 2021. Indeed, a noticeable effect of the crisis and the fact that more people are working remotely was a surge in the needed amount of semiconductors. A discussion was launched to see how the European Union or the US could create back-up plans to avoid shortages of these essential products. The major barrier to establishing new plants in the two geographical areas are the significant investments needed. An American company may

be able to invest twelve billion dollars but very few European countries can afford to do that. It would probably only be reachable with a European alliance of several countries.

What is more, environmental concerns are growing all over the world and companies need to think about how they can limit their carbon footprint. Ethical concerns about the working conditions of the people who produce the goods also need to be taken into account. Every company's situation is different and there is no solution that can be applied to all firms.

2.4.3. EFPIA

Regarding backshoring in the EU, they highlighted two crucial elements: import dependencies and export vulnerabilities.

Import dependencies appear when a large share of the EU's imports come from only one or few sources outside the Union. But they stressed that the portion of imports in drugs coming from only one source outside the EU is very small. If this is the case of critical medicines, then, the proper way to address this would be to incentivise companies to bring part of the production to Europe but never force them to do so as it would only distort markets. Of course, price is a significant issue as the EU cannot compete with India on wages but other criteria, such as reliability of supply, could be introduced when there is a tender to give a chance to loyal companies.

EFPIA does question however, whether the EU would really want to focus its industrial strategy on basic medicines such as Paracetamol or rather be producing the new and innovative technologies such as the mRNA vaccines or the new genes therapies. Indeed, deciding to produce more of a basic product within the EU will be at the expense of other more value-adding activities and this factor should also be taken into account.

Export vulnerabilities would appear if the EU were to backshore all its production from outside the continent. Then, other countries would retaliate by favouring their local production as well, which would have disastrous consequences for the EU economy and the losses would probably outweigh the benefits. There would be a price to pay and all scenarios should be analysed before making hasty decisions.

In the *ECIPE report* (2020) commissioned by EFPIA, it appears that the EU's share of imports (in volume) of all pharmaceuticals coming from India and China does not represent a

dependence (2.5% and 14.4% respectively). Most of its imports come from Europe as a whole (the EU, Switzerland and the UK). The same applies to its exports, although the share of exports to China is very low (2.9%). The shares of imports of finished pharmaceutical products (in volume) from China and India are very low (0.3% and 1.3%). However, the figures do change when it comes to the imports of APIs, as 22.5% of the volume of APIs imported to the EU come from China and 3.2% of them come to India.

EFPIA does acknowledge that there has been some backshoring since the start of the crisis but it is part of a firm's strategy to do so, it should not be imposed by the authorities, because it would bring unwanted side effects. A better solution would be to foster an innovative environment in the EU with a highly skilled workforce and a top-notch education system and to provide incentives for firms to invest in the EU thanks to public-private partnerships, an efficient regulatory system and strong IP rights. And again, they question whether the EU wants to backshore manufacturing activities and operations or rather R&D that will be able to create the medicines of the future. The association highlights that the real competition lies in the technologies of tomorrow, not in the ones of the past.

2.4.4. EFCG

EFCG highlights that it will not be possible to backshore everything and it may not even be desirable. What they are arguing for are back-up plans to manufacture at least some of the critical medicines within the EU. They insist that there should be at least two alternatives for one product to avoid the political and environmental risks of producing in only one location. Of course, this would come with a cost, which means that there is a trade-off to be made by societies.

2.5. Opinion on regionalisation

2.5.1. FEB-VBO

They highlighted that some companies are opening production centres overseas to position themselves closer to new markets they want to enter and take advantage of the upcoming growth in those areas. Of course, these manufacturing activities will not be backshored as their

primary goal is not to serve the home-market, so they value proximity to keep a short delivery time. Those firms could also be located there to be close to other nodes of the supply chain (e.g. raw materials, intermediate goods suppliers) and would not want to move too far from them. A major factor to be taken into account are the transportation costs, if they were to surge, it could lead to dramatic changes in firms' locational strategies but it is not possible to forecast them at the moment as it is a very dynamic factor and the consequences would likely vary from one sector to another.

They acknowledge that some governments and consumers favour short circuits in some industries (agriculture, food…), among other things for environmental motives, but they are not convinced this would be doable in all of them. And even in these industries, they stressed that Belgian food companies are also happy and proud that some of their products (beer, cheese…) are sold all over the world. Trade is a two-way exchange and should benefit both parties by focussing on one's strengths and some raw materials may not be available in every region (e.g. some ores), which implies some sort of dependence on other countries.

2.5.2. Agoria

The federation only mentioned that some small companies had decided to backshore but a lot of companies are still re-evaluating what to do. And the COVID-19 crisis is not the only issue that makes firms re-evaluate their choices, other factors such as the Suez canal obstruction in 2021 or the national protectionism linked to Brexit and the Trump presidency, the US-China trade war also play a role. These will influence the future regionalisation decisions of companies even more than the COVID-19 crisis. Even inside the EU, countries are competing to become the leader in some specific industries (e.g. hydrogen) by putting more investments, offering subsidies, but this could lead to more backshoring in the future.

2.5.3. EFPIA

The association does not think there will be a one-fits-all scenario as all companies have their own strategy. Besides, they argue it would not benefit certain geographical areas of the world such as Africa or Latin America as firms would probably choose other hubs to supply those areas. They reckon that there could be more regionalisation due to the policies drawn by states

but it will likely have a negative impact on the costs. Besides, they support global production centres as it enables firms to concentrate expertise and take advantage of scale economies.

2.5.4. EFCG

Regarding regionalisation, the expert said that in her opinion, the crisis highlighted a need for more regional hubs instead of a global one. But she acknowledges that it should be financially sustainable for firms. She is aware that Western countries cannot compete with Asian countries on wages. However, she is arguing for a new way of conducting public tenders inside the EU with new criteria: quality of the production and the product, respect of the GDPR, commitment to the environment, ethical manufacturing practices. Indeed, she highlights that countries can strive to improve the environmental and quality standards inside the EU but if they continue to import from countries that do not respect the same standards and do not follow the same rules, it will not work because countries would not be competing on the same playing field. Hence the need for global standards to secure clean and quality production all over the world.

3. Cross-cases analysis

In this section, we will compare the inputs made by each interviewee regarding the different topics of the research. Some of their opinions are convergent whereas others nuance the statements made by the others.

First of all, none of the interviewees mentioned that a massive way of backshoring was to be expected. The alarming speeches held in 2020 seem to have faded up and may only have been meant to please and reassure worried citizens. We could posit that when the COVID-19 pandemic arose, the uncertainty was so high that citizens as well as governments were distressed and wanted quick decisions that were not taking into account the long-term effects. One year on after the crisis, all the stakeholders have calmed down and have had more time to think about the decisions they want to make.

As explained above and mentioned by the respondents, not all sectors are planning to bring activities back to their home-country. However, on May 5th 2021, the European Commission released its Industrial Strategy for Europe. It highlights six vulnerable sectors in the EU, for

which more thinking is needed to adequately adapt the policies and make supplies more secure. Please find below the sectors mentioned by the European Commission:

Critical sectors identified by the European Commission	Active pharmaceutical ingredients (APIs)
	Raw materials
	Lithium batteries
	Hydrogen
	Semiconductors
	Cloud and edge computing

The EFCG pointed out that a huge part of the process to manufacture the most commonly sold APIs (more than 80%) was taking place in two countries: China and India and that even the latter was dependent on the former for some raw materials. The expert insisted that the dependence was mostly on raw materials and intermediates and not on the final APIs (which are shown in the statistics by ECIPE, 2020 and are less worrying). She mentioned that in normal times, the system was working well but was still vulnerable to shocks (either local or global) and that is why they are advocating for back-up plans on the European continent for what they deem as essential medicines (i.e. not a full backshoring but only a guarantee that a back-up plan exists at home to avoid the risks of concentrating production in only one place).

As the expert at EFCG put it, "*COVID did not create the problem, COVID highlighted it and exacerbated it"*, which means that the vulnerabilities already existed before but were uncovered at the height of the crisis when for instance, India decided to block the exports of Paracetamol and its raw materials.

Of course, they are aware that increasing the capacity for certain APIs or medicines on the European soil will consequently decrease the one for others but they still think it is vital. The expert at EFPIA also pointed out that trade-offs will have to be made between different medicines if companies were to decide to produce more basic products in Europe as the capacity for the other ones would decrease. He argues that Europe has more to win by focusing on the medicines of the future.

The two experts at FEB-VBO and Agoria highlighted that the dependencies on raw materials (minerals, rare earths, etc) cannot easily be suppressed as not all of them are available in

Europe. Partnerships with countries outside the Union will therefore always be necessary and long-established companies may prefer to stay where they are located instead of backshoring to remain close to the raw materials supplies. The *European Commission* (2020) made a list of the 30 raw materials they deemed as critical for the Union due to their necessity to manufacture other vital products.

The experts at FEB-VBO, Agoria and EFPIA all agreed that the measures taken by the governments to close their borders at the height of the crisis were actually one of the main reasons why supply chains inside the ESM were disrupted as European economies are very interdependent. Indeed, these actions led to delays at the border to make goods enter a country, increases in costs of transportation and some workers could not even go to their workplace. EFPIA also pointed out that nationalistic measures taken in some countries to keep their ICU medicines within their own territory resulted in shortages in areas where they were more needed to be distributed. EFPIA does consequently not support the export authorisation scheme as it could incite countries outside the EU to retaliate and to block exports as well. The experts at FEB-VBO, Agoria and EFPIA are all arguing that the authorities should try to keep borders open and processes as fast as possible to enable the GVCs to work effectively. They should be aware of their own mistakes to improve the way they cope with such a crisis instead of trying to find a culprit in the GVCs. The FEB-VBO recommends the authorities to conduct a risk analysis to prepare action plans for various scenarios as they consider that disruptions could become more common due to climate change.

The FEB-VBO, Agoria and EFPIA argue that forced backshoring by the authorities will never be a sustainable solution as it would distort markets. Some companies may decide to backshore as part of their own strategy but it should not be imposed on them. They instead recommend the European authorities to incentivise companies to do so by creating an innovative and competitive business environment for firms inside the ESM. This should be made up of a modern infrastructure, a skilled workforce in combination with a first-class education system, subsidies for innovative companies, affordable energy costs, investments in 4.0 technologies and most importantly, strong regulations and IP rights A significant issue brought by the COVID-19 crisis in the eyes of *Agoria* (2021) was a decrease in R&D budgets and the postponement of several projects and the consequences thereof will be damaging for innovation-based companies.

If such an environment were to exist in Europe, companies could decide to bring back some very value-adding activities (such as innovation, research and development, design, marketing) or even create new ones on the continent. The interviewees agree that it would be more profitable for European states to be at the heart of the cutting-edge technologies of tomorrow than to manufacture the ones of the past or of other countries. They consequently still advocate to keep basic activities such as manufacturing and operations in countries where the labour costs are lower.

The expert at EFPIA also mentioned that not all activities can be backshored anyway as other countries could replicate the move to bring production back towards their own territory and avoid European products, which would damage the European economy. He insisted that all scenarios need to be carefully considered before drawing new policies.

Regarding the regionalisation topic, what was mentioned by the respondents was that the COVID-19 crisis in itself would not be the only factor to take into account. Other circumstances such as the climate crisis, ethical concerns (working conditions of the people who produce the goods), national protectionism (e.g. Brexit, the USA-China trade war), the Suez canal obstruction also influence companies when they re-evaluate their location strategy.

The FEB-VBO, Agoria and EFPIA all highlighted that it was impossible to give a solution that could be applied to all industrial sectors because even inside a specific sector, some companies prefer global manufacturing instead of regional manufacturing and vice versa. The expert at FEB-VBO mentioned that many organisations want to be located in areas of growth and innovation or close to suppliers of raw materials and intermediate goods and may therefore decide to stay there. The manufacturing activities developed there may be intended to serve the local market and would then not be backshored to avoid an increase in the delivery time. This exemplifies the difficulty of choosing between a regional and a global strategy (be close to the market to serve or close to where the rest of the production takes place leading to a concentration of expertise and scale economies).

The expert at EFCG gave a different opinion, saying that regionalisation could become more common to reduce risks but pointed out that it would not work in the current system based solely on price and costs. She advocates for a new way to conduct publics tenders in the Union. The authorities should then take into account other criteria such as respect of international

quality standards (including the need of a uniform definition), respect of the environment, use of ethical manufacturing practices. The expert at EFPIA also indicated that a criterion such as reliability of supply could be introduced and would consequently be at the advantage of organisations located closer to the home-market.

4. Confrontation with the theory

In order to formulate our final recommendations, we will confront what was said in the literature and the press sources with the content of the interviews.

The interviews showed that no massive wave of backshoring was to be expected. And even newspapers seem to have changed their mind. In 2020, *The Economist Intelligence Unit* was pointing at the world's dependence on China and was predicting a change towards more regionalised value chains after the COVID-19 crisis to secure supplies of critical goods (e.g. PPEs at that time). They did acknowledge, however, that this would impact the final good prices and make production less competitive, except if firms were able to play on product differentiation to satisfy local consumers' tastes. On April 3rd 2021, an article in *The Economist* was arguing against more regionalisation (in light of the COVID-19 consequences as well as other events such as the US-China trade war or the Suez Canal obstruction) that, in their opinion, would bring more vulnerabilities to the supply chains and consequently, would not make them more robust. They pointed out that China had been able to ramp up its production of face masks tenfold and other industries also reacted and recovered quickly (e.g. the food and the pharmaceutical industry), meaning that GVCs may have been part of the solution in certain sectors rather than sources of new problems as it allowed firms to diversify their sources of supply and their range of customers (also mentioned by the expert at FEB-VBO and *Miroudot*, 2020). They advocate for more diversified sources of supply as well as an enhanced adaptation capability of private firms, which would really bring more resilience and robustness (a distinction also made by *Miroudot*, 2020) to supply chains in order to be better prepared to face future crises.

However, *Barbieri, Albachiara, Stefano, Luciano, Matteo, and Samson* (2020) recommended, as did the expert at EFCG, that back-up plans for essential products should be developed in Europe. The authors as well as the expert highlighted that companies that were already

considering the move back home before the crisis could have decided to take the plunge in light of the vulnerabilities uncovered by the disruptions.

Hence, our first recommendation:

R1: Europe should implement back-up plans on its soil to be able to produce critical goods as mentioned in its Industrial Strategy.

As mentioned by the expert at Agoria, *Jain, Girotra and Netessine* (2016) found that supply chains based on redundancy may not be the most resilient ones as the relationship with the supplier may be weaker and consequently, the partners would be less inclined to do their utmost to help in a situation of crisis. That is why, *Miroudot* (2020) argues that companies should design their GVCs to make them flexible and agile to reallocate manufacturing activities in times of crisis without implicating a duplication of capacity or suppliers.

Miroudot (2020) insisted that border closures at the height of the crisis had created unnecessary disruptions in the GVCs. He shares the opinion of the experts at FEB-VBO, Agoria and EFPIA that authorities should not make the same mistake in the future by avoiding such measures. Regarding the risk analysis recommended by the expert at FEB-VBO, *Simchi-Levi and Simchi-Levi* (2020) also came up with a method to test companies' resilience in critical industries through the use of stress tests. These tests should estimate how long it would take for the supply chain of the firm to recover and how long it can hold before breaking down (i.e. not satisfy the demand anymore). Organisations should be able to recover faster than the time after which they cannot meet their customers' demand. They argue that authorities could require companies in critical industries to conduct these tests and report on their results to mitigate the effects of future disruptions by being better prepared.

Hence the two following recommendations:

R2: The European Union should strive to keep the borders open even under times of crisis to allow GVCs to work effectively and avoid delays[1].

[1] States could be worried about issues related to the sanitary crisis but the respondents highlighted that the need to supply the raw materials for crucial goods such as medicines or ventilators was stronger than the sanitary risks their transportation could pose. The green lanes put in place by the EU were a good solution to facilitate the movement of the stakeholders and the goods that really needed to cross the borders.

R3: European companies in critical industries could be required to conduct risk analyses to test their robustness and their resilience against different scenarios of crisis in order to be better prepared if they happen.

Barbieri, Elia, Fratocchi and Golini (2019) also defined the characteristics of the innovative business environment that European authorities should strive to foster if they want to incentivise companies to invest in the European Single Market, with among other things, investments in 4.0 technologies. *Leibl, Morefield, Roger and Pfeiffer* (2019) highlighted the importance of strong regulations and IP rights. These were elements mentioned by the other experts for the future of GVCs in Europe. The expert at EFPIA insisted that the future of Europe's industry lied in innovative technologies that will be developed on its soil and not in producing existing medicines considered as basic.

Here is the last recommendation related to the backshoring issue:

R4: The EU should foster a technology-based environment to attract and retain more innovative firms on its soil, which will be more beneficial in the long-term than bringing back basic production activities.

Regarding the regionalisation topic, *Fjellstrom, Fang and Chimenson* (2019) as well as the expert at FEB-VBO mentioned that some companies decide to locate their activities in booming or innovative markets to supply them directly. It means that these activities would not be brought back to Europe if they are not intended to serve the European market. Besides, each firm's context is unique and the underlying motives to be located at a specific place may outweigh the benefits of producing closer to the place where they want to sell.

The recommendation related to the regionalisation topic is based on the contributions made by the interviewees:

R5: To incite firms to produce inside the European Union, the Commission should use new criteria when there is a public tender to give a chance to local suppliers that cannot compete on price.

In a nutshell, as put by the *World Economic Forum* (2020): "T*he COVID-19 crisis may be an opportunity to redesign the GVCs in light of the vulnerabilities that were uncovered to make*

them more efficient in the future." Thanks to the theoretical and practical contributions, we learnt that it meant, firstly, to analyse the vulnerabilities of the GVCs in order to bring solutions to improve them in the future (*Miroudot*, 2020; and all the respondents). Whether firms will backshore or not will remain part of their own strategy and should not be imposed to them. Every industrial sector faced different issues and there is no one-fits-all solution, which explains why some of the recommendations advocate for a more local production whereas the goal of the others is to keep supply chains running efficiently in a more globalised paradigm. The recommendations are thus dependent on the vulnerability of a specific sector to external shocks. For instance, when vulnerabilities will be totally analysed in the six sectors highlighted by the European Commission, firms in those areas may be incentivised or willing to establish back-up plans on the European soil (as is advocated by the EFCG for APIs and mentioned in the first recommendation) but it will not be the case for all sectors.

Conclusion

Throughout this research, I have striven to answer the following question "*How will the backshoring trend evolve after the COVID-19 crisis ? Towards a new paradigm of regionalisation ?"*

We discovered that backshoring is still a recent phenomenon but that although the trend had been on the rise, cases of offshoring are still more common than cases of backshoring. Please find below the existing motives for firms to backshore before the COVID-19 crisis:

Existing motives for backshoring before the COVID-19 crisis
Lack of flexibility
Quality not meeting the expectations
Cost motives
Industry 4.0 technologies
"Made in" label effect
Improve the company image

During the interviews, the respondents brought mixed answers as whether backshoring would increase or whether production would become more regional as a result of the COVID-19 crisis. A clear finding is that no massive wave of backshoring is to be expected and that not all sectors will react in the same way. Many may decide to keep things running as before, although a few adjustments should help them improve their robustness against future crises. Other sectors, deemed as critical by the European Commission will need particular attention and their supply chains may be redesigned to become more regional or to include backshoring of some activities (at least back-up plans).

It is essential to remind what the expert at EFCG pointed out: "*COVID did not create the problem, COVID highlighted it and exacerbated it".* Many elements are threatening companies and their supply chains (protectionism, climate change…) and COVID uncovered some existing flaws in GCVs but it was not their root cause. The effects from COVID should therefore be dissociated from the other ones but the recommendations made in this work can be applied by companies and authorities to be better prepared in other contexts.

Please find below the dependent variables related to each recommendation as a consequence of the COVID-19 crisis.

Independent variable	Dependent variables
The COVID-19 crisis	Implement back-up plans
	Policies to keep transportation flows working
	Conduct risk analyses
	Establishment of an innovative business environment

Figure 3: What will be done to improve the GVCs after the COVID-19 crisis

Independent variable	Dependent variable
COVID-19 crisis	Introduce new criteria in public tenders

Figure 4: How regionalisation could be promoted after the COVID-19 crisis

It seems that the alarming calls made by some politicians in 2020 were largely exaggerated and based on a few striking examples (e.g. PPEs) but it does not mean that there are no lessons to be learned from this crisis, as we can see above. Even if companies decide to stick with "business as usual" (i.e. keep producing far away), incorporating the elements of the recommendations will strengthen their robustness against future disruptions. And the governments also have a role to play as it was noticed that they have a significant influence to make GVCs work efficiently.

We have to mention a few limitations to this work. First of all, the respondents were active either at the Belgian or the European level, their contributions may therefore not take into account the specificities of other countries inside or outside the Union. Consequently, the findings may not be applicable to these countries. Besides, the interviews took place between March and May 2021, when European policies were still being drawn up, some elements may therefore change over time and the final decisions of the authorities or of some firms may only be made in a few months from now. Furthermore, the screening of the interviews had to be done by hand as no free access to the NVIVO software was granted by the company. Although the classification in files and cases was not relevant for this research project, the analysis of the interviews could have been more thorough with the use of this software.

Many topics around the issue still need to be further analysed. First of all, the same situation could be analysed in a few years, after the COVID-19 crisis definitely vanished. We also tried to focus on the specific consequences of the COVID-19 pandemic but the consequences of

other events such as the US-China trade war or the climate change effects could also be researched. Finally, it would be interesting to see what role could industry 4.0 technologies play to help companies that decided to backshore as a consequence of the COVID-19 crisis and how could it be implemented in their backshoring strategy to make them more agile.

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