
Responding to the COVID-19 pandemic: lessons in supply chain management among industrial firms

The COVID-19 pandemic has presented companies that sell cross-border and/or purchase inputs from abroad with problems in terms of importing goods and the shipping of their own produce to foreign clients and markets. Against this backdrop, the present paper reviews the causes behind the supply chain disruptions when the pandemic unfolded, as well ways through which companies tried to deal with them. The paper postulates that actors in international business will place a stronger emphasis on risk management and business continuity plans, and that the adoption of advanced, digital, forms of market intelligence gathering and supply chain vigilance will strike root. In parallel it expects that rather than a wave of backshoring, a layered form of offshoring can be foreseen towards the future: a form multi-localization across various continents, and on occasions also inside an individual continent.

La pandemia COVID-19 ha creado problemas a las empresas que venden a otros países y/o compran artículos en el extranjero en lo que respecta a la importación de mercancías y al transporte de sus propios productos a clientes y mercados extranjeros. Teniendo esto en cuenta, el presente artículo analiza las causas de las perturbaciones y rupturas de la cadena de suministro debidas al desarrollo la pandemia, así como los métodos que utilizaron las empresas para afrontarlas. El artículo señala que, en adelante, los actores de las empresas internacionales harán más hincapié en la gestión de riesgos y planes de continuidad empresarial, y que cobrará fuerza la adopción de formas digitales avanzadas a la hora de recoger información del mercado y la vigilancia de la cadena de suministro. De manera paralela se espera que, en lugar de una oleada de relocalizaciones, se puede prever para el futuro una forma de deslocalización con varios niveles: una forma de multi-localización en varios continentes y, en ocasiones, dentro de un solo continente.

COVID-19 pandemiak arazoak sortu dizkie beste herrialdeetara saltzen duten eta/edo atzerrian artikulua erosten dituzten enpresei, salgaiak inportatzeari eta beren produktuak bezero eta atzerriko merkatuetara garraiatzeari dagokienez. Hori kontuan hartuta, artikulua honek pandemiaren garapenak hornidura-katean eragindako nahasmenduen kausak aztertzen ditu, baita horiei aurre egiteko enpresek erabili zituzten metodoak ere. Artikuluak planteatzen du nazioarteko enpresetako eragileek arreta gehiago jarriko dutela arriskuen kudeaketan eta enpresa-jarraipeneko planetan eta indarra hartuko duela merkatuko informazioa biltzeko forma digital aurreratuak hartzeak eta hornidura-katea zaintzeak. Aldi berean, birlokalizazio bolada baten ordean, etorkizunerako hainbat mailatako deslokalizazio-modua aurreikus daitekeela espero da: hainbat kontinentetan eta, batzuetan, kontinente bakar baten barruan multilokalizazio forma bat.

* Spanish versión available at <https://euskadi.eus/ekonomiaz>

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Keywords: supply chain management, international business, multinational management, digitalization, servitization, backshoring.

Palabras clave: gestión de la cadena de suministro, negocios internacionales, gestión de las multinacionales, digitalización, retorno de procesos productivos.

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1. INTRODUCTION

As the COVID-19 pandemic unfolded, many companies that either sell cross-border and/or purchase inputs abroad for their production processes back home got confronted with problems of goods supply and of connectivity with the clients and markets they address.

In a way, the pandemic has made the concept of VUCA (the acronym for the volatile, uncertain, complex and ambiguous nature of today's world) very palpable and real. Certainly, it has brought to the surface how volatile and uncertain trade can be when it relies on complex international relations.

In this contribution, I address a series of businesses issues that have emerged with the Corona-crisis along the following building blocks:

* The author would like to thank dearly all the representatives of the companies mentioned in Table 2 for their interactions and sharing of insights. Similarly, he is grateful for the comments and direction provided by two anonymous *Ekonomiaz* reviewers after presenting an earlier version of this paper. He also wants to thank Esteban Salegi (Deusto) for feedback on a previous draft.

- Supply chain disruptions: postures towards dealing with insecurities in supplier-buyer relations (see section 2).
- Relationship management with customers (and suppliers) in times of travel restrictions and difficulties to pay personal visits (see section 3).
- Foreign entry mode choices: assessing the viability of export formulas to sell on (distant) foreign markets versus higher equity modes when transport costs are on the uprise (see section 4).

First of all, I put each of these issues into a European perspective and discuss postures that companies can adopt in their regard. In addition, I outline possible implications following from the three above-indicated questions should the current climate of uncertainty persist. To do so, apart from drawing upon insights from literature, I build upon evidence and testimonials obtained from a variety of private businesses located in the Basque Country, like industrial firms and transport/logistics enterprises. In addition, I draw upon research carried out by affiliates from Orkestra-Basque Institute of Competitiveness (among others: Kamp and Sisti, 2018; Kamp and Gamboa, 2021; Magro *et al.*, 2020; Zubillaga and Pelletier, 2020). The decision for choosing the Basque Country as a research setting was taken for both pragmatic and logical reasons: the author of this paper is based there and this facilitates the access to information and informers, while also the readership of *Ekonomiaz* is concentrated in the Basque Country. Moreover, it is a highly open economy: around a third of the industrial gross value added in the Basque Country is due to exports (Kamp, 2019), while it is also highly reliant on import of goods from broad (Eustat, 2018).¹ As such, it is highly affected by hold-ups or interruptions of trade relations.

Thus, when the pandemic broke out early 2020, I started a process of interactive research (Ellström *et al.*, 2020) in the form of recurrent interactions with representatives of diverse industrial companies in the Basque Country. In particular, with professionals from these companies that hold positions of responsibility in the field of purchasing, supply chain management and freight forwarding. All firms are highly internationalized and obtain a considerable share of their revenues thanks to foreign sales, in some cases close to 90%.

This served to keep the pulse with changes and impacts that the COVID-19 situation implied for internationally operating industrial firms from the Basque Country. These interactions were periodically fueled by the issuing of (divulgate) texts to provoke thoughts, to gather further inputs and testimonies, and to see how opinions would evolve as the pandemic rolled on.

¹ https://www.eustat.eus/elementos/ele0018500/comercio-exterior-2014-2018-folletos-pdf-398-mb/in-f0018530_c.pdf

In this manner, throughout 2020 the interactive research was fed through the following chain of action-reaction moments.

Table 1. TIMELINE OF INTERACTION MOMENTS BETWEEN THE AUTHOR AND PRIVATE BUSINESSES IN THE BASQUE COUNTRY

January 2020	---
February 2020	Survey among Basque companies to get a first feel of how firms were viewing and coping with the irruption of the pandemic and its consequences for international business
March 2020	https://blogs.diariovasco.com/ekonomiaren-plaza/2021/03/16/back-shoring-u-off-shoring-esa-es-la-cuestion/ https://blogs.diariovasco.com/ekonomiaren-plaza/2020/03/24/sera-el-coronavirus-un-catalizador-de-la-servitizacion/ Contraste de estrategias de internacionalización en ventas y compras entre empresas alavesas (virtual meeting with experts)
April 2020	https://blogs.diariovasco.com/ekonomiaren-plaza/2020/04/28/provocara-la-corona-crisis-un-cambio-de-rumbo-en-la-gestion-de-las-cadenas-de-suministro-internacionales
May 2020	---
June 2020	https://www.youtube.com/watch?v=zUvoNWRsFFA
July 2020	https://www.linkedin.com/posts/bart-kamp-4282821_the-role-of-clusters-in-supply-chain-adjustments-activity-6692074575410278400-uGM4
August 2020	https://www.linkedin.com/pulse/reshoring-wheres-beef-bart-kamp 19
September 2020	https://www.linkedin.com/posts/bart-kamp-4282821_cambios-en-las-cadenas-de-suministro-debido-activity-6715663954422579200-mpSX https://www.linkedin.com/posts/bart-kamp-4282821_the-role-of-clusters-in-supply-chain-adjustments-activity-6715644190300110848-qx4D
October 2020	https://www.linkedin.com/posts/bart-kamp-4282821_eccp-scm-13102020-activity-6722036241006637056-hkQN https://www.linkedin.com/posts/bart-kamp-4282821_slides-escuela-de-verano-upv-eustat-activity-6724328037384638464-s9mS
November 2020	---
December 2020	---
January 2021	https://iap.unido.org/articles/industry-40-driving-backshoring-manufacturing-activity

Source: own elaboration.

Table 2. PRIVATE BUSINESSES THAT WERE CONSULTED AND GAVE THEIR VISIONS (ON MULTIPLE OCCASIONS) WITH REGARD TO THE ISSUES DISCUSSED THROUGHOUT THE CURRENT PAPER²

ABC Compresores (hydraulic systems)	CAF (railway equipment)*	Glual (hydraulic systems)	Lazpiur (machine tool building)	San José López (logistics)
Aernnova (aerospace)*	CREDEBLUG (lifting equipment)	Goizper, S.Coop. (agro-industrial equipment)*	Loramendi (machine tool building)	Satlantis (aerospace)
ALCORTA FORGING GROUP S.A. (automotive)*	DHL (logistics)	Hellmann (logistics)	Natra (foodstuffs)*	Shuton (machine tool equipment)
AMPO S.COOP (hydraulic systems)*	EGA Master (hand tools)	Hine (hydraulic systems)*	ONA ELECTRO-EROSION (machine tool building)*	Soraluce (machine tool building)
Amurrio Ferrocarril y Equipos (railway equipment)	EIKA (electrodomestics)*	Irizar S.Coop (rolling material)*	Ondozabal Group (industrial mechanics)	Stern Hidraulica (hydraulic systems)
Bellota Agrisolutions (agro-industrial goods)*	Elytra (lifting equipment)	Irizar Forge (lifting equipment)	Orkli (electrodomestics)*	Tubacex (equipment for oil and gas extraction)*
Biolan (biotech)	Erreka (fasteners)	Izar Cutting Tools, S.A.L. (hand tools)	PASABAN (machine tool building)	Ulma Manutención (utility vehicles)
Burdinola (laboratory outfitters)	Eurocybear (cybersecurity)	JAZ (hand tools)	RPK S. COOP. (automotive)	Urola (machine tool building)
Cadinox (large-size industrial cylinder building)	GH Cranes (lifting equipment)*	Kimua (lifting equipment)	SALTO SYSTEMS (electronic locking systems)	Vicinay (lifting equipment)*
KSB Itur (hydraulic systems)				

Source: own elaboration.

² The companies with an * count with overseas production plants.

The interactions with the former companies allowed getting a broader as well as a more detailed understanding of how the matters discussed in the present paper affect Basque industrial companies with an international business profile. In parallel, it enabled combining top-down views (via literature review) with bottom-up perspectives (coming from the consulted companies) to address the respective issues.

Consequently, the rest of the paper is structured as follows. Section 2 deals with the causes behind the supply chain disruptions as they appeared when the pandemic unfolded, and with ways through which companies tried to deal with them. Section 3 looks into *modus operandi* that companies explored and adopted in view to reorient their customer relationship management under the new circumstances and how to continue to extract value from those relationships. Section 4 looks into possible implications for the way that international business could be organized in the future. I.e., in the spirit of globalization or more on a continent-by-continent basis («regionalization»). Section 5 presents concluding remarks and points out the limitations with which the present article comes.

2. SUPPLY CHAIN DISRUPTIONS

2.1. Reasons behind supply chain disruptions

The COVID-19 pandemic has led to the disruption of supply chains, and this has affected part of the European industry. An important nuance to be made in this regard is that most attention went to disrupted flows of goods from far away. While European industry has become increasingly intertwined with other parts of the world, like China, also intra-european supply chains were arrested because of the pandemic. Miroudot (2020) even claims that EU economies are more dependent on regional supply chains than on China.

Certainly, trade did not come to a halt during the pandemic. In the first place, it became more tedious, costly and slow.³

The disruptions that companies got faced with, manifested themselves chiefly as a form of «force majeure» or due to «opportunistic behaviour» on behalf of suppliers. On headlines, the observed causes can be portrayed as follows.

³ For example, the Shanghai Containerized Freight Index (the price indicator for containerized freight from Shanghai to other seaports) has been rising steadily during 2020 and continues to do so in 2021: <https://www.forbes.com/sites/philkafarakis/2021/03/12/the-supply-chain-will-never-disrespect-the-shipping-container-ever-again/?sh=6ae3154f4607>; <https://dsv.port2port.co.il/uploads/sites/101/files/DSV%20Panalpina%20Market%20Update%20Air%20and%20Sea%20November%2018th.pdf>.

Table 3. REASONS BEHIND SUPPLY CHAIN DISRUPTIONS

Force majeure	Opportunism
<ul style="list-style-type: none"> • Deliveries not coming through, or with delays, as they are held up in ports or during transport legs⁴ 	<ul style="list-style-type: none"> • Suppliers retaining shipments
<ul style="list-style-type: none"> • Providers not being able to produce anymore as they run out of raw material (not shipping goods due to lack of inputs) 	<ul style="list-style-type: none"> • Purveyors shipping deficient or inadequate material
<ul style="list-style-type: none"> • Suppliers ceasing production/shipments due to demand shortage from key clients 	<ul style="list-style-type: none"> • Providers selling to the highest bidder leaving other (potential) clients in the cold⁵
<ul style="list-style-type: none"> • Purveyors going bankrupt or being confined (furlough) 	<ul style="list-style-type: none"> • Higher tier producers attempting to bypass their direct clients to serve buyers further downstream in the chain

Source: own elaboration.

2.2. Dealing with industrial supply chain disruptions

The supply problems caused by the COVID-19 pandemic have revealed the vulnerability of Europe's industrial activity. Consequently, European companies have become concerned with making their supply chains more resilient and agile through enhanced security and flexibility.

Based on lessons from previous supply chain «crises» (e.g. the Japanese earthquake of 2011), and conceptual literature on resilient supply chains (Chopra *et al.*, 2014; Sheffi *et al.*, 2005; Sheffi, 2015, 2016; Shih, 2020A, 2020B) the following taxonomical options emerge as regards the ways that companies can try to manage their supply chain uncertainties.

A first consideration that companies can make, is:

- Whether to continue buying (outsourcing) inputs from (distantly located) third parties, or to internalize production activities (make in-house). I.e.,

⁴ This has also occurred as certain countries put in place export restrictions (Curran *et al.*, 2020) and as stricter border/customs and port procedures as well as controls were implemented (Curran *et al.*, 2020; OECD, 2020B; WTO, 2020). New health regulations also affected rules around the disembarkation of crews, something which reduced capacity in the shipping industry. In addition, events like the Suez Canal being blocked by the Ever Given in March 2021 formed a major obstruction to global trade.

⁵ This happened also in the form of competition between governments to secure access to existing stocks, and to prevent others from attaining this: <https://www.bbc.com/news/technology-55936011>, <https://arstechnica-com.cdn.ampproject.org/c/s/arstechnica.com/tech-policy/2021/02/china-targets-rare-earth-export-curbs-to-hobble-us-defense-industry/?amp=1>

adopt internalization concepts to address supply chain risks and provide guidance to make-or-buy decisions (Strange, 2020). When confronting theory with practice, we see in the case of the Basque companies that:

- Internalization of previously outsourced production appears to have happened only rarely.⁶
- Imports from places like China, Mexico, Russia or the United States did not evaporate during 2020, indicating that long haul supply chains continued to be of great importance.⁷

Secondly, as regards the goods and inputs that a company continues to acquire from third parties, it can review the anatomy of the corresponding supply chains, i.e.:

- Whether to shorten the distance that supply chains can span (by going for regional, e.g. intra-European purchasing of goods) or to continue relying on long haul (e.g. transcontinental) supply chains. In this regard, academia holds quite opposite views. Whereas Handfield *et al.* (2020), based on a US and a UK case study, argue that this crisis provides evidence that localized systems are more likely to be robust and resilient than global supply chains, an OECD (2020A) study claims that in addition to higher costs, recurring to local sourcing can lead to higher volatility in securing supplies, as there are fewer channels for adjusting input provision. Concerning the attitude that Basque companies adopted in this respect, we also discern opposite postures:
 - On the one hand, there have been companies (e.g. from the electrodomestics sector) that devoted considerable effort to optimizing or even re-composing their supply chains: «We are making great efforts to improve our supply chain for most of the items that we purchase outdoors». On the other hand, there have been companies (like those from the hydraulics industry and the aerospace sector) that did not change much to their supply chains, and who are convinced that the suppliers they are working with, even if some of them are located far away, remain the best options for them, as they were selected after severe scrutiny and weighing all the pros and cons. The following declaration illustrates this stance: «If the procurement model or supply strategy is well designed, it will not change in the event of a pandemic. However, the operational tactics can indeed be adapted to such an unforeseen situation».
- Whether to back-shore or keep own production abroad. Problems with logistics and delivery standards have been signalled as a possible trigger for back-

⁶ Off course, such internalization should not be confounded with the start-up of own production activities for specific products (like mask and respirators) instead of first-time purchasing or importing them from third parties.

⁷ https://www.eustat.eus/elementos/ele0005700/ranking-de-las-importaciones-de-la-ca-de-euskadi-por-paises-p/tbl0005723_c.html.

shoring decisions (Dachs *et al.*, 2019). If such problems arise, it makes sense to bring production activities closer to the end market (Kinkel and Maloca, 2009; Lu, 2017; Johansson and Olhager, 2018). Of course, the former argument is only valid for foreign plants that produce for distant end markets, and this may only be the case for a fraction of the world's off-shore factories.

- Certainly in the case of Basque firms, most of their foreign plants produce for the surrounding markets (Kamp and Gibaja, 2021), making their closure and moving back to Europe a strange foresight. Even more so if supply chain «vicissitudes» are in play. As a consequence, since the outbreak of the pandemic there have only been isolated cases of companies (such as: KIDE)⁸ bringing production activities back from other continents.
- Conversely, several of the companies from Table 2 made high equity commitments abroad during the pandemic in the form of take-overs or investment in organic production capacity. For example, Alcorta Forging,⁹ Bellota¹⁰ and Salto.¹¹
- Whether to introduce (more) redundancy into supply chains, as in the form of dual or multiple sourcing; something that could also come in the form of «one supplier providing inputs from multiple locations or countries» (Ferrarini and Hummels, 2014). Or to opt for or stick to single sourcing, and make use of exclusive suppliers, in line with Sheffi (2005b) who argues as follows. Using multiple providers for a single input tends to be a costly solution to mitigate supply chain risks. Typically, this is a solution that only 'big buyers' are able to afford. In more graphical terms, Sheffi (2005b) argued on the issue of multiple sourcing or incorporating redundancy into the supply chain that organizational resilience can be promoted in a three-fold manner: through increased supplier redundancy, by developing more flexibility and agility, and by changing a company's culture. Consequently, he judges redundancy to be a *modus operandi* of limited utility, while he considers the other two modes as essential. Here again, we see opposite stances:
 - At one end, buyer firms from the electrodomeitics industry believe they should diversify their supplier base: «We have a lot of problems with single sourcing situations and we want to transit towards double sourc-

⁸ <https://www.tulankide.com/es/kide-concentrara-toda-su-produccion-en-berriatua-para-septiembre-de-2022>

⁹ <https://basquetrade.spri.eus/en/commercial-opportunities/usa/alcorta-forging-group-investing-15m-in-ohio-expansion/>

¹⁰ <https://www.diariovasco.com/economia/agrisolutions-propietaria-bellotalopezpi-20210705164940-nt.html>

¹¹ <https://www.diariovasco.com/economia/salto-systems-desafia-20201015145648-nt.html>

ing for many items.» At the other end, buyers from the aerospace and hydraulics sector argue that «Although the strategy or decision to work with single suppliers is a risk, it can also be the best one. Moreover, the development of new suppliers is complicated».

Thirdly, companies can reconsider their routing and modal choices. For instance, by considering:

- Whether to opt for alternative transport routes than the ones that the company is currently using.
 - Certainly, the blocking of the Suez Canal has temporarily led to the re-routing of some ocean carriers (choosing the Cape route instead). It is obvious, though, that for cost and time reasons, this is likely to remain an exceptional choice. Moreover, the Basque companies consulted argue that they simply have to follow suit regarding what global carriers decide to do. This opinion was seconded by the logistics and freight forwarding companies from the panel presented in Table 2.
- Whether to apply a modal shift (using other transport modes than the current one(s)) or to cling to the current mode(s). Alternatively, they can work via fourth-party logistics providers to use multiple logistics options instead of a single transport mode or source (Sarkis, 2020).
 - Some movements among Basque firms could be observed in this regard, but chiefly at the outset of the pandemic. At that time, firms from various sectors (including machine tool building and locking systems) swapped ocean freight for air freight lines over long distance, to ensure that deliveries would come in. Evidently, this was very costly, which made that this was not sustainable in time. It did not last long either because travel bans implied that the amount of air cargo shipments got reduced as well.

Fourthly, companies can decide to change their vigilance activities regarding supply chain activities and partners. Among others, they can contemplate:

- Raising the level of control exerted on suppliers and flows of goods that make up the supply chain or sticking to the current monitoring intensity and the frequency of communication along the supply chain. Earlier supply chain «crises» revealed substantial behavioural changes in this regard, as companies reinforced their risk management activities to raise supply chain resilience (Pettit, Fiksel and Croxton, 2010; Kamalahmadi and Parast, 2016).
- Amplifying or sophisticating the means with which supply chain activities can be made transparent and followed (e.g. by increasing the use of strict protocols and reporting acts, real time intelligence and data analysis) or staying with the current reporting routines. In this regard, authors like Bir-

kel and Hartmann (2020) argue that big data analytics can also be leveraged to tackle supply chain risks.

- Designing a stricter (or more contingent) business continuity plan than the current one (provided there is one) or clinging to the one in place. The essence of a business continuity plan (Sheffi and Bryce, 2005; Sheffi, 2015) or a contingent supply plan is to -once a disruption is detected- have a pre-designed plan available and to deploy this solution rapidly. It can be likened to an emergency plan that stipulates how to act if a disaster occurs. Such plans typically leverage information technology systems for production, sales and order planning and demand forecasts, inventory levels and information about shipments to ensure that a company can react quickly if incidents occur. Ideally, these plans allow a company to shift production from a plant or supplier in one place to another plant or supplier in another locality when needed.
 - As regards the intensification of control upstream the supply chain, a rather common stance could be observed among the sample of firms presented in Table 2, as in general they went from «solely interacting and making agreements with the next supplier in line» towards «increasing the span of control along the supply chain (all the way upstream)». Similarly, several of the consulted Basque firms insisted on the increased relevance of counting with a «Business Continuity Plan», and how they are here to stay., as in general they went from «solely interacting and making agreements with the next supplier in line» towards «increasing the span of control along the supply chain (all the way upstream)». Similarly, several of the consulted Basque firms insisted on the increased relevance of counting with a «Business Continuity Plan», and how they are here to stay.

Finally, complementary decisions can be taken around inventory levels, i.e.:

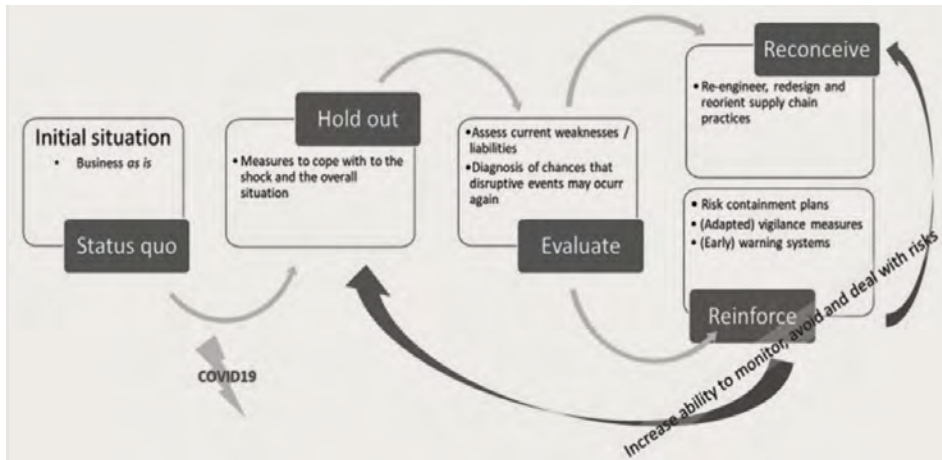
- Whether to build in (more) slack capacity and stock reserves or to (continue to) opt for Just in Time (JiT) deliveries and Lean Manufacturing strategies. One should know, though that the cost of structurally holding extra inventory often outweighs the gains from risk reduction. I.e., holding extra inventory implies that when there is a reduction in demand, companies with high inventories run into bigger losses and more of them could go bankrupt.
- Whether to keep stocks in one central place or to work with a distributed or federated network of stocks in different logistics centres (Handfield and Linton, 2017).
 - Expanding inventories has been a measure that several Basque firms resorted to, notably from the hand tools business. Also, there have been firms -like Biolan- that were clairvoyant enough and had the means to build up stocks prior to the outbreak of the pandemic, which enabled

them to keep supplying their clients with produce. Also from the automotive industry, it was voiced that safety stocks have become more in vogue to accommodate demands from downstream customers.

2.3. Logics behind opting for reinforcing or reconceiving supply chain practices

Based on the considerations and options presented in section 2.2, companies can adopt different postures along a continuum from maintaining their existing supply chains functioning as is («reinforce the status quo and incorporate more checks-and-balances»), to submitting them to a complete overhaul («reconceive current supply chain practices»), as visualized in the next figure.

Figure 1. FLOWCHART REGARDING SUPPLY CHAIN REARRANGEMENT DECISIONS



Source: own elaboration.

Given that last year's supply chain disruptions created situations in which certain companies fell victim to hold-up situations (see Table 3) and these cases draw a lot of attention, they prompted specific high-placed (public) persons to argue in favour of radical changes to reduce Europe's industry dependence on extra-communitarian supplies.¹² In the same style, several scholars have proposed making supply chains shorter, more domestic, and/or more diversified (Coveri, Cozza, Nascia, and Zanfei, 2020; Handfield *et al.*, 2020; Javorcik, 2020).

¹² See e.g. the speech of Commissioner Thierry Breton at the European Parliament - Committee on Industry, Research and Energy on 24/4/2020, or French Minister Bruno Le Maire's speech on «European industrial sovereignty» at an International press conference d.d. 2 April 2020, or www.bloomberg.com/news/features/2020-05-29/germany-s-merkel-is-seizing-chance-to-revolutionize-economy and <https://smeunited.eu/admin/storage/smeunited/200421-am-commission-council-annex.pdf>

However, whether companies actually want to opt for radical or limited changes is arguably dependent on:

- Whether the disruptions they faced were a cause of force majeure or opportunism. When confronted with force majeure, it is likely that trust in previously functioning methods remain rather intact. Contrarily, when companies have been confronted with opportunistic behaviour from suppliers and/or freight forwarders, they may be more inclined to go for radical turnarounds.
- Whether the uncertainties are short-lived and can be resolved quickly and easily, or whether they become lasting. Under the first circumstances, a preference for sticking to or renewing past practices may prevail. When uncertainties become ongoing, a stronger urge to part company with past practices may impose themselves.¹³

Altogether, it appears that the amount of Basque companies pursuing radical changes has been limited, and that those who have implemented real turnarounds in their supply chain management practices have even been fewer.¹⁴

Beyond the reservations to not change their ways too much as already cited in section 2.2 (or under the previous bullet points), some additional reasons can be highlighted to explain why the consulted Basque companies seem to have reinforced their supply chain management rather than reconceived it entirely. And these typically have a behavioural component to them. Firstly, in times of uncertainty it is human behaviour to prefer familiar solutions than to embrace the unknown (Judson, 1991; Kotter, 1995). Moreover, B2B relationships tend to be long-lasting, precisely to safeguard stability (Kamp, 2004, 2005).

In this regard, also single sourcing is associated with long-term relationships with suppliers. These long-term relationships ensure faster recovery because it makes suppliers more committed to mitigating risks. In addition, it makes them more inclined to go beyond their contractual obligations when having to address disruptions, and to share more information to keep delivery and production processes flowing. As such, long-term supply relationships tend to lead to a stronger willingness to mutually adjust, leading to superior resilience (Miroudot, 2020). As such, the tendency to stick to past routines is not unlikely, not even in turbulent situations. Finally, substituting suppliers may not offer a quick way-out when (long-term) contracts hold buyer-supplier relations together, when alternative suppliers require certification or other lengthy inspection or training rounds, or when sources

¹³ For companies that regularly face disasters, redundancy can be indicated (Sheffi, 2015).

¹⁴ In fact, this can not only be derived from my interactions with companies, but it is also the impression that I obtained from participating in meetings with cluster associations from the Basque Country throughout 2020 as part of SPRI's «Roadmaps for Economic Reactivation in response to the pandemic» cycle.

for high-value inputs are sparse and their providers hold a monopoly or oligopoly position (as is now happening with chips, semiconductors and rare minerals).¹⁵

As regards the application of JiT principles, and the fact that these have been questioned in the current context; one should consider that JiT and Lean manufacturing practices are reconcilable with resilient supply chains. That is: risk management strategies and JiT are often combined. Even more so, those firms that hold low inventories and invest in lean production processes (both in-house and along the value chain) are typically also the ones investing most in the monitoring and management of risks (Miroudot, 2020). The idea of companies combining JiT practices with risk management strategies may thus support forms of agile or flexible manufacturing (Potdar *et al.*, 2017) instead of leading to lean manufacturing in its purest sense. In this regard, it should be highlighted that lean manufacturing is a typical trait among Basque manufacturing firms, and that many of them invest substantially and continuously in (supply and production) process optimization. Therefore, rather than advising them to moderate this habit, they should complement it with duly risk management practices.

3. CUSTOMER RELATIONSHIP MANAGEMENT

3.1. Digitalization

Digital transformation got a serious boost during the pandemic, and it pushed many Basque companies towards the digitalization of business processes. In fact, according to Zubillaga and Pelletier (2020), the adoption of digital technologies on behalf of Basque firms has not been an act of pragmatism to deal with a new context or of applying them as a fire-fighting mechanism. Rather, in many cases it has been seized as a strategic tool to proactively prepare for an all new setting.

As a consequence, it also enabled them to initiate new forms of customer relationship management. For instance, via the use of social media, engaging in on-line interactions and videoconferences, the development of omnichannel selling, the offering of apps, and the use of sensors and digital twins -for example- to monitor the use and state of products in the hands of clients and to make IoT a reality, ...).

Interestingly, the Basque firms I consulted with opined that for incumbent firms -those that already count with a strong market position- the investment in digital ways to interact with clients serves a defensive purpose (to keep them locked in). Conversely, for newcomer firms it is a necessary investment to try and build inroads into new markets and new customer relations, but by no means it provides

¹⁵ <https://www.wsj.com/articles/everywhere-you-look-the-global-supply-chain-is-a-mess-11616019081>; <https://www.bbc.com/news/technology-55936011>; <https://arstechnica-com.cdn.ampproject.org/c/s/arstechnica.com/tech-policy/2021/02/china-targets-rare-earth-export-curbs-to-hobble-us-defense-industry/?amp=1>.

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them with a guarantee for success. Particularly younger companies from the panel in Table 2 signaled this last point and stressed that incumbent firms start with an advantage in this «game». Several companies that hold a commanding position in their market segments, like Bellota, seconded this point. What the sampled companies further reported in this regard is that, in B2B markets with long and complex negotiation processes and well thought-through purchasing decisions, cold calling and blind buying is certainly not the norm. The former makes it easier to keep existing customers than to win new ones. Accordingly, during uncertain times such incumbent advantage is strengthened and the attitude among customers to choose suppliers who can guarantee stable, high-quality, supplies tends to be reinforced. Only if buyers are looking for something radically new or different, is when they feel encouraged to try out wholly new suppliers. However, for inputs that they have been using all along, they gravitate towards tried-and-true purveyors.

Another thing that came out of the consultations with the Basque companies was the advantage that can be attributed to incumbents in the form of having better insights into how demand preferences and requests from the market evolve, since they can often capitalize on established communication channels (off- and on-line) along the value chain. This also makes it easier for them to pick up signals and to reposition themselves.

Therefore, for companies with a track record in a (niche) market, their long-standing presence and relationships with customers can serve as a lifeline in uncertain times, while these relationships can also function as a barrier to entry for others. In such a context, digitalization serves as a complement, rather than a substitute, for building relationships and trust. In fact, the surveyed companies argued that developing inter-organizational bonds is best done when buyer and supplier actually see each other's faces, sit down together to discuss details and (finally) can shake hands over a deal.

3.2. Servitization

In times of economic downswing product sales (especially of durable goods) are reduced more than the consumption of services. Consequently, during such periods –just like good flows are interrupted (see section 2)– users of capital goods may put new purchases on hold. At the same time, products already in use still require regular service and may need support and this forms an enabler for servitization.

This cushioning effect that service business can provide in such times, is made clear both by macroeconomic studies analysing the ups and downs in income from the sale of products and services during the 2007/2008 financial crisis (ECSIP, 2014; Ariu, 2014), as well as by business case analysis (Glenn and Bandulet, 2013; Cusumano *et al.*, 2015). The former studies show that 'servitization' helps mitigate the negative effects of an economic downturn. As such, a servitization strategy can act as a countercyclical stabilizer (Kwak and Kim, 2016).

This suggests that manufacturing firms are incentivized to develop their service business more vigorously and intelligently in the current context, e.g. via the offering of smart and digital services. In the case of the Basque economy, this could lead to a catching-up effect, since its industry obtains a rather low share of its revenues from service business on average (Kamp and Sisti, 2018).¹⁶

The adoption of Industry 4.0 technologies (Gilchrist, 2016) can act as a further catalyst in this regard. However, as Kamp and Gamboa (2021) demonstrate: until recently the adoption of different types of Industry 4.0 technologies did not lead to a broad-based generation of income from (smart) services among Basque industrial firms.

Based on the consultations with the sampled Basque companies, a main lesson was that they leverage digitalization and Industry 4.0 technologies to roll out remote product monitoring and control services, on-line inspections and interventions, augmented/virtual reality-enhanced field operations and maintenance tasks (the testimonials of Alcorta Forging and Burdinola are cases in point here). All in all, the surveyed firms confirm the importance of services to strengthen the link with customers throughout the life cycle, to make revenues less cyclical and to learn what customers are looking for beyond a good product. In principle, they consider that they take good care of their customers after they landed a sale or a contract. However, they admit that they struggle to capture value from the services they offer and develop in the pre- and post-product sales phases. Therefore, they view servitization as an important assignment. Also, because it can help them to maintain or improve their position in their value chains as well as their share in the «value pie» to be shared along these value chains.

On a different note, there have been scholars that foresee more potential for the application of servitized earnings models, like pay-per-use formulas or outcome-based contracts (Rapaccini *et al.*, 2020). In a similar vein, subscription-based payment models may become more in vogue. The latter are judged to be safer for suppliers than pay-per-use or outcome-based payment formulas, certainly in times of bad weather, as they can seriously backfire when customer operations stand still (Bond *et al.*, 2020). At present, this is an area where most Basque firms are rather inexperienced (Kamp, 2020).

3.3. «Productization»

In the slipstream of the supply chain disruptions that occurred, OEMs started to screen their supply chains more thoroughly. I.e., trying to look beyond their direct suppliers, trying to establish the capacities of the different players along the supply chain, and their respective risk profiles. One lesson that resulted from those exercises to raise supply chain transparency is that «manufacturing matters». This is a

¹⁶ <https://blogs.diariovasco.com/ekonomiaren-plaza/2020/03/24/sera-el-coronavirus-un-catalizador-de-la-servitizacion/>

claim that has typically been stated during the pandemic with regard to (national) sovereignty and becoming less vulnerable to supplies from far away (see section 2.3). However, it is also something that applies to at the level of individual supply chains and is a concern to gatekeeping firms who want to be sure that their suppliers count with genuine production capacities. Hence, some of them have started to weed out their supply chains to retain or strengthen their relationships with those providers that count with (extensive) manufacturing capacities of their own, ideally spread out across the globe. This has been signaled by several of the Basque firms that were consulted, notably those that count with overseas production plants (the firms with an *). Consequently, counting with own production capacity in different places across the globe renders its owners with a same kind of benefit in the current context as the incumbent advantage that was commented upon under section 3.1.

In the sense that OEMs have become extremely wary of counting with lower tier suppliers that turn out to have deficient production structures, or who do rely on further outsourcing or externalization of production. Similarly, companies that have own product development capacities are also more likely to survive amidst the current turmoil provided they make use of their resources to pivot towards future-oriented products and services. Evidently, upstream sub-contractors and jobbers can also do this, but they may be more dependent on others to point them in the right direction and to help them on board of reorienting value chains.

Such productive capacities can also generate opportunities to improve firms' positions in the value chain. For example, in the form of occupying a more central or gatekeeping role in the configuration and composition of a final product or a turnkey project. E.g. by offering a more complete product or assembly, or by taking on the mechanization or automation of parts. Especially in chains where the role of product integrator is traditionally in the hands of an actor without its own production capacity, there may be opportunities for suppliers with manufacturing capabilities to improve their positions. Firms, like Burdinola and GH Cranes, testified that they had managed to seize such opportunities during the pandemic.

4. INTERNATIONAL BUSINESS STRATEGIES

4.1. Globalization or Regionalization strategy

In line with the backshoring discourse (Dachs *et al.*, 2019), there have been researchers speculating about (selective) de-globalization.¹⁷ Similarly, there have been voices announcing a move towards a regionalization of trade (Enderwick and Buckley, 2020).

¹⁷ http://www.realinstitutoelcano.org/wps/portal/rielcano_es/contenido?WCM_GLOBAL_CONTEXT=/elcano/elcano_es/zonas_es/ari43-2020-olivie-gracia-fin-de-la-globalizacion-reflexion-efectos-crisis-covid-19-indice-ecano-de-presencia-global

The latter follow in the footsteps of scholars like Rugman and Verbeke (2004) or Hoon Oh and Rugman (2014), who contend that regionalization is an important trait of international business. Several sources provide data for this phenomenon: Miroudot (2020) argues –based on intelligence from OECD’s TiVA database– that EU economies are much more dependent on their regional supply chains, and not so much on China; indicating how EU countries’ high import intensities is more of a regional affair than a transcontinental thing. Likewise, data from the McKinsey Global Institute indicate that while international trade continues to grow in absolute terms between 2007 and 2017, exports declined from 28.1 to 22.5 percent of gross output in goods-producing value chains in this same period. Meanwhile, the intra-regional share of world trade has increased by 2.7% since 2013 according to the same source. This trend is fueled in particular by growing trade relations within the European Union and inside the Asia-Pacific region.¹⁸

Should the pandemic and the supply chain disruptions that came along lead to a more pronounced form of regionalization, then it would be plausible that supply chains will get a stronger continental dimension as well. Some of the Basque firms that were consulted, argue that this type of shortening intra-continental supply chains may have the following implications. While it was previously possible to serve German customers from, e.g., Spain, US customers from Mexico or Japanese customers from China, the closure of borders and the paralysis of activities and flow of goods at the height of the confinement meant that this was no longer possible. Consequently, this led to shortages of supply for those customers/OEM who relied on suppliers located outside their (home/host) countries. Faced with this situation, certain customers (for example from the automotive industry) started to demand that supply buffers or chains be created in the immediate vicinity of their plants, at least for key inputs. This would allow them, in the event of a new closure of the borders, to ensure the supply of strategic components.¹⁹ For Basque companies currently not present next to this type of clients, it would mean finding ways to become physically present in the vicinity of their customers’ plants. One solution could be through warehouses at the destination that ensure a specific safety stock for the customer in local mode. Whatever the solution provided; it is clear is that this situation is going to demand an extra effort of suppliers that are presently located at a distance. In the words of Brakman *et al.* (2020), it can mean a comeback of buffers across countries, and a partial return to regionalization that will see just-in-case stocks appear as a complement to just-in-time management.

¹⁸ <https://www.mckinsey.com/featured-insights/innovation-and-growth/globalization-in-transition-the-future-of-trade-and-value-chains>

¹⁹ In this regard, territories like Baden-Württemberg as well as Switzerland have created support measures to safeguard strategic supply lines towards local powerhouses. See e.g. the «Beteiligungs fonds für den Mittelstand» (Magro *et al.*, 2020, p. 21) and the Swiss’ «Federal Office for National Economic Supply» and its competence to intervene in markets to ‘fill’ gaps in essential supply chains (<https://www.bwl.admin.ch/bwl/en/home.html>).

Interestingly, from the realm of international trade warnings are voiced that this type of solutions may make business less vulnerable to transcontinental supply chain interruptions, but more exposed to continental or domestic shocks (Espitia *et al.*, 2021).

4.2. Foreign entry mode choices

As indicated under section 4.1, the (perceived) relevance of national borders increased due to the pandemic, and free trade became obstructed across countries and continents. In this regard, international trade scholars Lui, Ornelas and Shi (2021) even contend that government measures were the principal cause of reduced imports from foreign countries, and not the degree with which logistics possibilities to supply goods across the globe. Now, while import «barriers» can surely be lifted again, and a situation of free movement of goods would therefore return, the «perimeter awareness» of firms has been (re)activated and this can make them more risk averse towards the distance over which supplies have to travel.

The former could give way to a stronger call upon distant suppliers to set up production and storage hubs nearby the point of delivery instead of resuming cross-border shipments (see section 4.1).²⁰ As a consequence, it could imply that high equity modes like foreign direct investment (FDI) gain importance over low equity modes like export. And this could then cause a shift in the balance between the entry modes to foreign markets, with more investment in physical plants overseas as a result.

Interestingly, if FDI gains weight as an arrangement to do business across borders, particularly the most distant-located business relations would be forced to recur to this type of entry mode. In other words, and given the growing supply relations between, e.g., Asia and Europe, it could mean that Asian firms become more active in setting up branch locations in Europe or in taking over firms located in Europe, while in the other direction one could expect a similar dynamic.

While the entry of American firms on European soil and the acquisition of European companies by U.S. companies is by now a common phenomenon, the takeover of European firms by Asian companies is a lot less typical. However, it has started to gain traction over the past decade as a string of Chinese and Indian takers of German hidden champions shows.²¹ Furthermore, there have been eye-catching operations on behalf of Geely (Volvo, Sweden), Haier (Candy and Me-

²⁰ For firms that ship equipment in completely knocked-down format, or which form bundles of inputs from multiple providers, it may be an option to make the installations more easily mountable in situ or to create bundles of inputs sourcing from suppliers that are located at close range from the final client (amplify the number of international alliances). These are arrangements that e.g. Pasaban and Burdinola initiated during the pandemic.

²¹ <https://blogs.diariovasco.com/ekonomiaren-plaza/2020/05/26/adquisiciones-chinas-de-campeones-ocultos-alemanes-truco-o-trato/>
<https://www.wsj.com/articles/indian-firms-go-hunting-in-germanys-mittelstand-1428697627>

neghetti, Italy), Tata Steel (British Steel, United Kingdom, and Hoogovens, the Netherlands), Tata Automotive (Jaguar and Land Rover, United Kingdom), Mittal Steel (Arcelor, Luxemburg), HiSense (Gorenje, Slovenia) or Lenovo (Medion, Germany) over the past decade.

Particularly, Basque companies from the electrodomestics and railway industry count with the possibility that Chinese firms will increase their physical presence in Europe in the coming years.

4.3. Location choices as part of FDI

As the pressure for firms to be more physically present across the world may be mounting, the idea of multi-localization (Errasti, 2013, Ugarte, 2019) may also get a new boost. This would go beyond the idea of having one foot in every leg of the Triad economy (Ohmae, 1985). In fact, it could mean working towards a China-plus-one location strategy (Enderwick, 2011) for the Far East, and towards having more than one establishment in Europe or North America.

This type of location strategy would also lead to a greater diversification of supply bases per continent –or redundancy (Miroudot, 2020), and thus of a regionalization of supply chains and enhanced insidership on multiple continents (Venohr and Kamp, 2019)–. A strategy of greater diversification may also enable foreign multinational enterprises to benefit in Asia from China’s expanding business in/with the Association of Southeast Asian Nations (ASEAN). In fact, not only China but also Taiwanese and Japanese companies are increasingly committing resources to Thailand, the Philippines, Vietnam, India and Indonesia.²²

Similarly, multi-localization would strengthen the interest in high equity entry modes to foreign market. Already during the pandemic, the advantage of counting with multiple overseas production plants was palpable, and Basque firms having a cross-continental manufacturing infrastructure benefited from this. As stated by a producer of agro-industrial goods that is included in Table 2: «Having plants in different continents improves our market position as, due to protectionism and risk aversion, it increases the security of supply to customers who buy globally. Particularly in countries with high entry barriers, this leads to a tendency to buy from companies with local stock/production who can guarantee a secure supply as they have proprietary production and logistics activity.» Similarly: «The appreciation of having installed production capacity has gone up during the pandemic. As gatekeeping companies reviewed their supply chains, most of them opted for retaining those higher and lower tier suppliers with own production capacity of the materials and components they supplied.» In fact, these two

²² Chow, N. (2020). China: China-ASEAN Trade to Flourish. DBS Flash, DBS Bank Singapore. 8 June.

statements reflect how more Basque firms that were consulted opine, including firms from the aeronautics, railway and biotech industry.

5. CONCLUDING REMARKS

It can be foreseen that despite the pandemic and the supply chain disruptions it caused, companies will want to continue doing business on a global scale, both for sales and purchasing purposes. In other words, it does not expect an end to globalization. However, the way that multinationals and supply chains will organize global business may indeed undergo adjustments.

For starters, it is likely that global business actors will place a stronger emphasis on risk management and business continuity plans to make inter-continental supply chains resilient and reliable. Intelligence gathering and supply chain vigilance are key in this regard. In addition, it can be expected that suppliers that are located at long distances from their clients may need to consider holding stocks at arm's length of these clients. This may lead to more fine-meshed physical presence of companies on different continents: a form multi-localization across various continents, and on occasions also inside an individual continent.

The former has the following broad-based implications. Location and on-site presence will matter more, inciting more off-shoring, albeit in a layered fashion, instead of backshoring. It is also plausible that we will see more FDI and hierarchy arrangements as an entry mode to and way of operating on foreign markets instead of exports. Moreover, it will imply that overseas investments will increasingly be led by market-seeking rather than efficiency-seeking motives. In addition, a regionalization of supply chains may not only lead global suppliers to expand their multi-continental footprint, it may also create gaps that intra-regional suppliers can tap into.

Together with the foresight of raising supply chain vigilance activities, purchasing firms will need to invest and develop broader supply chain management competencies (for instance, in the area of supplier selection and development). Under this heading, one can also think of the organization of 'stress tests' that allow companies to assess how resilient their supply chains are. Similarly, digitalization and servitization of (B2B) relationship will increase in importance to strengthen ties and to keep the pulse upstream and downstream the value/supply chain.

Evidently, this study comes with a series of limitations. First and foremost, the representativity of the findings and insights gathered from the Basque sample of companies may be reduced. While the experiences and declarations from the consulted companies provide useful illustrative evidence to make sense of lessons learned from desk research, the panel and their experiences may be region-specific. Moreover, the experiences and opinions expressed by the panel members may carry a case-/company-

specific component in them, and may thus not even be fully representative for the sectors they pertain to. Secondly, while the informers can be viewed as privileged witnesses, their contributions consist largely of stated evidence, and not revealed evidence. To get to the latter level, more sources (including codified ones from the companies that the informers represent) should be analyzed. Thirdly, the primary research parts on which the present article reports is basically a bottom-up exercise. Obviously, a more thorough analysis on aggregated data could shed complementary light on the issues addressed. The same goes for the fact that the period of analysis has been rather short, and more robust insights on companies' behaviour during and coming out of the pandemic would require a more longitudinal following.

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