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# The opportunity of nearshoring for a SME: a case study in glass industry.

TESI DI LAUREA MAGISTRALE IN  
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## Abstract

The case study analyses the phenomenon of nearshoring of the supply chain of a small-medium enterprise (SME) in closer countries to home market. The company is based in Palermo, Sicily and it operates in the food glass packaging.

This research highlights that even a SME puts into practice the relocation of suppliers, when necessary, in particular for issues such as quality, communication and high transportation costs. The thesis in fact analyses in detail the relationship between GlassCo and suppliers regarding communication and transport and the relationship with customers regarding quality feedbacks.

It has emerged that Asian suppliers are no longer suitable for the Italian market. Motives are automation and new packaging standards has evolved with different needs (i.e. palletization).

This has resulted in a change of suppliers, from Asia to North Africa and Eastern Europe, where standards are more easily respected, communications easier and product quality appropriate to customer needs.

The methodology adopted is an in-depth case study methodology. Company data have been collected mostly via interviews with GlassCo managers.

**Key-words:** Nearshoring, small-medium enterprises, suppliers, quality, transportation.



## Abstract in italiano

Il caso studio analizza il fenomeno della rilocalizzazione della catena di fornitura di una piccola-medio impresa (PMI) in paesi più vicini al mercato principale. L'azienda è situata a Palermo, in Sicilia (IT) e si occupa di packaging alimentare in vetro.

La ricerca evidenzia che anche una PMI mette in pratica la rilocalizzazione dei fornitori quando necessario, in particolare per questioni come qualità, difficoltà comunicative ed elevati costi di trasporto. Nella tesi infatti si analizzano in dettaglio il rapporto tra GlassCo ed i fornitori per quanto riguarda comunicazione e trasporto e il rapporto con i clienti per quanto concerne i feedback sulla qualità.

È emerso che i fornitori asiatici non siano più adatti al mercato italiano. Le motivazioni sono che l'automazione e i nuovi standard di confezionamento si sono evoluti con diversi bisogni.

Questo ha comportato un cambiamento di fornitori da parte di GlassCo, dall'Asia al Nord Africa ed Est Europa, in cui gli standard sono più facilmente rispettabili, le comunicazioni più facili e la qualità dei prodotti idonea ai bisogni dei clienti.

La metodologia adottata è un profondo caso studio. I dati dell'azienda sono stati raccolti per lo più dalle interviste con i manager di GlassCo.

**Parole chiave:** Rilocalizzazione, piccole-medio imprese, fornitori, qualità, trasporto.



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# Introduction

The thesis develops a real business case on GlassCo, an Italian distributors of glass packaging for food. The study focuses on the phenomena of the nearshoring and reshoring of the backward supply chains, so the switching of the suppliers from Asian continent to closer suppliers in North Africa and in Europe, closer to home market or to Italian suppliers.

The nearshoring, and in general the reshoring, are practices which are implemented, in recent years, by multinational enterprises (MNE). Due to this, most of the studies already published just focuses on the behaviour and businesses practises of MNEs. It is important to explicit that both phenomena are analysed often in the same manner and context. It would be interesting to analyse if and how these practises are used by SME and the causes that lead to these changes.

The methodology used was to extract the drivers of the reshoring and nearshoring from the literature available and analyse if they are the same for the GlassCo, thanks to the role of the researcher in the firm, purchasing manager.

The thesis is structured in the following chapters:

- Literature Review: Articles and papers analyzed for the study;
- Methodology: Description of the methodology and tools used;
- Case Study: Description of the company, industry and stakeholders;
- Conclusion: Findings and comments.

In the body of the thesis, the chapter "Case Study", were analysed the suppliers, the customers and in general the environment in which GlassCo has to deal with. Thanks to the information obtained in the interviews, it was possible to take stock of the phenomena and the drivers which led GlassCo to switching suppliers.

The study shows that effectively GlassCo has changed suppliers from Asia to North Africa and Eastern Europe. The drivers of this changes, coherently with the customers'

needs, was the quality; instead, due to organizational issues, the drivers were communication and transportation costs.

# 1 Literature Review

The state of art of the topic is wide, and the main argumentations are about switching the manufacture process from developing countries to developed or developing countries, closer to home-market.

Production processes have been developed over time into more technology-intensive, leading to a shift in the specialization of businesses in emerging countries toward more knowledge-intensive production systems. R&D, engineering services, and product development are examples of high value added operations that have been relocated to emerging economies as a result of improvements in technological capabilities and ICT.

In the last period, some businesses, in order to redesign the supply chain, have begun to move their offshore operations either back to their home nations, i.e. reshoring, or to other offshore sites closer to home market, i.e. nearshoring, after decades of outsourcing the production.

The practise to move operations in a closer country may be the right trade-off to exploit, partially, the advantages of offshoring and the to deal with a country with similar culture and practises.

## 1.1. Taxonomy

The words “Reshoring” and “Near-shoring” have different meanings depending on the definition the author chose to attribute. In this thesis, the following definitions are adopted:

“The phenomenon of relocating offshored business services has been labelled with several different terminologies (e.g., reshoring, on-shoring, in-shoring, back re-shoring). We adopt the term “reshoring” to indicate the voluntary (i.e. not forced by host country governments) partial or total relocation of business initiatives previously offshored, whether to another location or back home.” ([Albertoni et al., 2017, p. 417- 430](#)).

“Near-shoring refers to the decision to move production to countries that are close to the home country and far-shoring refers to the decision to move production to countries that are far from the home country and provide the best conditions in relation to reducing costs.” ([Gadde and Jonsson, 2019, art. 100526](#)).

The word “backward”, instead, regards all the part of supply chains before the focal firm, i.e. commodity producer – supplier – manufacturer – distributor – wholesaler (focal firm).

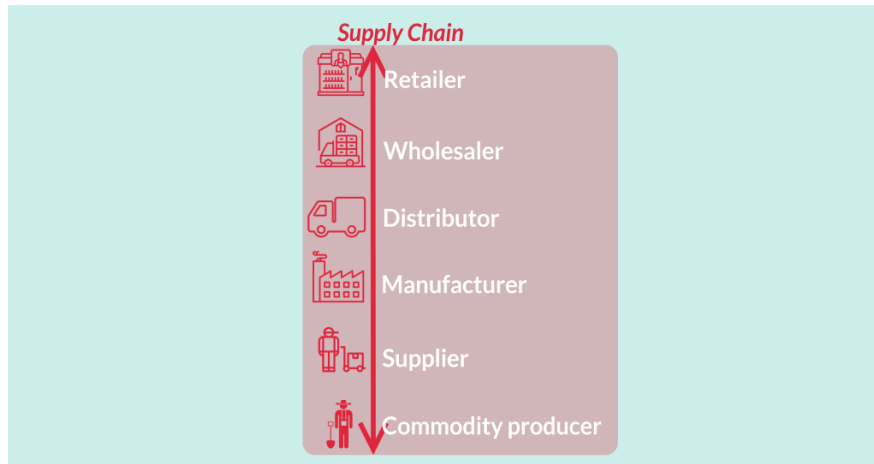


Figure 1. Image based on source [fourweekmba.com/backward-chaining](https://www.fourweekmba.com/backward-chaining)

In this thesis, the focus is not to the reshoring of the manufacturing process, but to the manufacturer itself, so to the choice to change a supplier located far to a closer and the reasons behind this choice.

## 1.2. Transaction Cost Theory (Hennart, 1977-2015)

The reasons behind the choice to reshore a part of a business for a firm could be explained by the **Transaction Cost Theory**.

In this theory, where a firm organize internally interdependencies and not by markets. The firms do not minimize transaction costs; they maximize gains from organizing interdependencies. The condition to apply this approach is that the benefit must be higher than the cost to organize these.

The common problems in sales subsidiaries-manufacturer are:

- *The holdup problem*, which arises where the investment of the distributor is manufacturer-specific;
- *The performance inseparability problem*, which is the difficulty to measure the performance of the manufacturer/distributor by looking at their output.

The reshoring or nearshoring of the supplier in a closer country or in the home-country may be a solution to better manage the investment and in general the relationship between them. In this case, the solution is not to organize internally, but to change supplier to another, closer and easier to manage.

### 1.3. Reshoring Drivers

Offshoring is a business strategy typically used by manufacturing companies to lower investment costs in high-cost or low-growth countries by setting up manufacturing or service facilities in foreign nations with low costs and high growth (Baraldi et al., 2018). Reshoring, on the other hand, was described as a method for moving manufacturing or service facilities from one country to home-country (Gray et al., 2013). The factors that drive offshoring include labour costs, available resources, and emerging markets (Baraldi et al., 2018. Schmeisser, 2013. Kinkel et al, 2009.).

However, it was showed that labour costs are the strongest and only factor in offshoring, indicating a close connection between the offshoring and labour-intensive industries (Johansson et al, 2018). On the other hand, reshoring drivers depends on a variety of variables, including a supply chain's technology, lead time, and quality (Srai, 2016. Stentoft et al, 2016). Last, long supply chains caused by far-shoring have been disrupted by the pandemic, highlighting the advantages of companies moving their production to closer countries in the same macro-region (Barbieri et al., 2020).

#### 1.3.1. Previous studies based on survey and case study on reshoring drivers

The analysis of the survey on 529 reshoring businesses spread across five nations revealed that the reduction of the labour-cost gap, logistics expenses, the Made-in effect on consumer perceptions of product quality, customer proximity, lead time, and government incentives were the most significant reshoring drivers for businesses (Wan et al. 2019). The primary reshoring drivers that affected decision-making were summarized in a survey of U.S. companies that did so in order to maximize their overall profit. These factors included a narrowing of the wage gap, an increase in American workers' productivity, a rise in the competitiveness of production costs due to the abundant supply of natural gas and government subsidies, and the improvement of business functions due to customers' ability to communicate quickly due to the proximity to important markets (Pearce et al. 2014). There were no significant differences in the important reshoring motivations for various industries, according to another survey of 139 reshoring companies in the U.S. The most significant reshoring motivations were listed as labour cost, impact on perceived quality (including Made-in effect and brand image), transportation costs, lead time, customer response, and government incentives (Zhai et al, 2016). By using the chi-square test and probit analysis to analyse survey data on German manufacturers, it was determined that labour costs and delivery flexibility were the main drivers of reshoring, which was then followed by product quality (Kinkel, 2012), in fact reshoring is said to be encouraged by the made-in effect in international markets (Canham S, 2013). Reshoring has been also studied from the point of view of consumer demand,

and it has been shown that because of the Made-in effect on how consumers perceive the quality of a product, businesses that choose to reshore may have a positive brand image, which can increase customers' willingness to pay for their goods (Grappi et al., 2018, 2020). But also tariffs on imported goods can encourage reshoring (Fratocchi et al., 2016). It was argued that skilled labor, exchange rates, and taxes could be additional reshoring drivers based on a survey of American company managers (Tate et al., 2014).

### 1.3.2. Summarizing the drivers of reshoring

- Reduction of labour-cost differences;
- Higher productivity in the home country;
- Higher transportation costs;
- Presence of tariffs:
- Made-in effect (quality);
- Government incentives (subsidies and tax);
- Reduction on production time and delivery time (efficiency);

### 1.3.3. Quality as driver of reshoring

Even though being largely ignored in the literature, decisions about offshoring have an impact on customer perceptions, particularly customer perceived quality (Cassia, 2020). According to certain studies, there is a decoupling between the firm's corporate social responsibility (CSR\*) claims and activities, which gives customers the impression that the company is acting hypocritically, which lowers perceived quality and buy intention with far-shoring than with near-shoring (Ramesh et al., 2019, Wagner et al., 2009). [CSR captures the interaction between business and society. Business should consider the economic, sociological, and environmental implications of its operations because these factors are all closely related (Carroll, 2021).] There is evidence supporting the notion that ethical considerations about child labour, environmental pollution, and human rights have a negative impact on opinions of offshoring companies (Grappi et al., 2018, Robertson et al., 2010). Some research demonstrates that consumers perceive lower-quality goods or services when production is outsourced (Durvasula and Lysonski, 2008). Most of the research on this topic focuses on outsourcing of services, such as customer service, and confirms that offshoring has a negative impact on how well services are perceived (Thelen et al., 2011, Honeycutt et al., 2012).

Conceptually, it should be made clear why offshoring is a sort of bad publicity that affects consumer views and behaviour. According to some study, the decision to offshore raises ethical questions among stakeholders in relation to practice like child labour. These issues also affect how customers see the quality of the products they purchase (Robertson et al., 2010). According to a research of consumer attitudes

toward reshoring, customers frequently link offshoring to human rights violations, the exploitation of foreign labour, and environmental destruction (Grappi et al., 2018). In fact, offshoring outsourcing is frequently seen as a strategy used by businesses to profit from unethical behaviour by exploiting the unethical practices of their foreign suppliers (Ndubisi and Nygaard, 2018).

It can be argued that: when brand familiarity is low, *perceived quality* is much greater when domestic insourcing is used compared to offshoring and when near-shoring is used compared to far-shoring; *purchase intention* is much higher for domestic insourcing than for offshoring and for near-shoring than for far-shoring when brand familiarity is low; Pre-offshoring perceived CSR is more negatively correlated with perceived quality for far-shoring than for near-shoring when brand familiarity is low (Colamatteo, 2021).

#### 1.3.4. Innovation as driver of reshoring

It's no longer just a matter of production costs. This is largely due to the introduction of new mobility technologies. Customer demands are changing in line with this. Additionally, rising production costs have slowed globalization and forced a slowdown in it. Therefore, offshoring has lost some of its appeal. It comes as no surprise when these developments are combined with the emergence of new technologies for businesses to start seriously debating where to locate manufacturing and innovation. Performance improvement is becoming increasingly dependent on innovation. Businesses in charge of new mobility are exerting more influence over location decisions (Strategic direction, 2022).

It can be assumed that a consequence of innovation may be another driver to reshore which is the control over the investments due to innovation (or customization) or other reasons. The investments in innovation/automatization may be very difficult to manage when these must be done in a too far country, because of the location of supplier.

#### 1.3.5. Lack of knowledge and communication as driver of reshoring

It was stated that when a company decides to offshore, they typically don't know much about the host nation (Kinkel and Maloca, 2009). A long-term plan is required before deciding to offshore, as well as research into workforce, marketing, and sales-related difficulties regarding the host country. According to studies, firms will be unaware of significant power structures and unwritten social codes in the host country if they don't conduct this kind of in-depth research and understanding (Anderson et al.,

1998). An important motivation for many of the reshoring drives is this kind of error in judgment (Kinkel and Maloca, 2009).

It was analysed by Forbes (2017) that 47% of all supplier-buyer collaborations fall rapidly. According to procurement leaders study, buyers' collaborative efforts tended to fail as a result of their underpowered supplier relationship management systems. A group of purchasing executives recognized four points:

*- Lack of trust/Commitment*

A fundamental factor in the high failure rate is Lack of the necessary preparation work that comes before collaborative initiatives. The supplier's trust in the customer is an important and frequently ignored element of trust. Collaboration necessitates supplier commitment and participation in a shared project.

*- Mismatched objectives*

A partnership will certainly disappoint one or both of the parties if the aims are not clearly understood by both. However, it is commonly seen that buyers launching an ambitious plan with their supplier while just sharing a portion of the success factors. Making KPIs available to suppliers is essential to ensuring that they are completely in line with the business's key metrics and overall company goals.

*- Unmanaged stakeholders*

Many of the research's procurement executives criticized the overabundance of stakeholders. The weight and frequently divergent nature of ideas became too much for procurement to handle.

*- Poor communication*

The inability to effectively communicate with others or to obtain crucial information from counterparts is at the heart of many business failures. This is a particularly serious issue when it comes to crossing organizational borders. Buyers do not adequately communicate the requirements of their own internal customers, while suppliers are unable or even afraid to express their real capabilities.

Adding the distances to these problems, the decision to change supplier in order to look for one closer is explained.

### 1.3.5.1. Cross National Distances

There are different types of distances: cultural, political, legal, economical, institutional, differences in language, in infrastructures; each of them influence the choice or practise to do business internationally.



**Cultural distance:** values and attitudes, customs, perceptions, education and social structure, religion. [Kogut and Singh \(1988\)](#) used these five dimensions to build an index of cultural distance: Power distance, individualism vs collectivism, masculinity vs femininity, uncertainty avoidance and long term vs short term orientation.

There are key mechanisms to close the cultural distance which are globalization, geographical proximity, foreign experience, staffing.

**Psychic distance:** the degree to which a firm is uncertain of the characteristics of a foreign country ([Uppsala](#)). The decision-makers' choices are influenced by psychic distance stimuli, the sensitivity to the stimuli depends on a number of variables, including age, educational level, and international experience.

**Geographic distance:** physical distance between countries which increases logistics costs. Variables: coordinates of their capital cities, bilateral distances of countries in km, languages spoken in the country under different definitions, landlocked country, colonial links.

**Institutional distance:** governance dimension, the similarity of dissimilarity between regulatory, normative institutions of two countries ([Xu and Shenkar, 2002](#)).

### 1.3.5.2. The CAGE Framework

Cultural, Administrative, Geographic and Economic distances are the factors influencing the relationship between people of different ethnicity in business.

Table 1: CAGE Framework

Attributes					
Cultural	Languages	Ethnicities	Religions	Social form	
Administrative	Absence of colonial ties	Absence of shared monetary and political association	Political hostility	Government policies	Institutional weakness
Geographic	Physical remoteness	Lack of a common boarder	Lack of sea or river access	Size of country	Weak transportation or communication links

<b>Economic</b>	Difference in consumer incomes	<p style="text-align: center;">Difference in costs and quality of:</p> <ul style="list-style-type: none"> <li>• Natural resources;</li> <li>• Financial resources;</li> <li>• Human resources;</li> <li>• Infrastructure, information and knowledge;</li> </ul>
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### 1.3.6. Reshoring for SMEs

Since the case study is about a SME, it was necessary to go deeper into SMEs reshoring.

The lack of empirical research on SME sourcing strategies may be due to inability to participate in complex GVC decisions. In fact, SMEs that compete in GVCs frequently rely on imprecise and ineffective assessment techniques and lack the ability to plan and foresee (Kinkel, 2007-2014). Additionally, they are limited in the direct monitoring and control processes that can be used (Manning, 2014), which results in increased coordination expenses and longer delivery timeframes. When a supply chain node fails, negative externalities are quickly transferred to other parties, especially in Italian industrial districts where subcontractor networks are intricately entwined (Canello et al. 2016). Little is known about the role SMEs play in the current reorganization of GVCs and how their sourcing practices affect regional production networks, but according to some studies' findings, local subcontracting networks do not necessarily shrink or get worse just because final firms participate in GVCs. (Canello et al., 2022).

## 1.4. Literature Review Methodology

When doing case studies, using theory and theoretical propositions can be a huge help in defining the best research design and types of data to be gathered. Equally significant, the same theoretical viewpoint will serve as the main vehicle for generalizing the case study's conclusions.

Thanks to Scopus, a database with about 25000 articles from more than 5000 international publishing, (and other websites) it was possible to find publications coherent with the phenomenon. The insertion of keywords and queries allowed to identify the published articles of authors which used the same words to describe the publications. Then through filters it is possible to exclude those papers older or about another context (i.e. sociological, political etc.). Then to redirect the user to the download page of the paper. Here not always was possible to download the papers,

because some papers are not public and must be paid, anyway where was possible, the paper were downloaded.

The initial search provided 112 papers, but after the steps described above, the number of paper analysed for the literature review were 40.

Then it proceeded with the complete reading of the papers left, by writing down KEYWORD/QUERY used to find them, YEARS, AUTHOR, TITLE, ARGUMENT and adding a comment to remind its utility and the most important parts to develop on the thesis.

After this process, a rereading of the parts useful to the case study took place, and the chapter of the literature review was written to explain the phenomenon, the past studies and the drivers which create such situation.



## 2 Methodology

This thesis is based on a case study, which is an empirical investigation that investigates a contemporary phenomenon in depth and within its real-life context, particularly when the boundaries between phenomenon and context are unclear. The case study research is a theory development, among other things. As a result, theoretical propositions are a starting point rather than the end result of case study analysis. In fact, case studies, like experiments, aim for analytical generalization.

There are single case studies and multiple case studies. A single case study can be compared with an experiment, it can be used for critical cases in order to test theory, as well as evaluate cases that may be radical, revelatory or typical. Multiple case design, instead, has the advantage of allowing to build a framework in which either literal replication predicts similar results across multiple cases. In this particular case, the research is based on single case study according to the previous characteristics.

A case study i) deals with the technically unique situation of having many more variables of interest than data points and has a result; ii) benefits from the development of theoretical propositions in advance and to guide design, data collection, and analysis; iii) depends on multiple sources of evidence, with data that must converge in a triangular pattern.

### 2.1. Synthesis

The methodology used was to exploit the existing literature to explain in general the phenomenon and thanks to interviews and the data collection of the firm, it was possible to develop the case study and so to understand if the phenomenon is verified in real life or not.

Phases

- Literature Review: Essential to analyze the phenomenon generically and its past studies.

Tools used: Scopus, public business web-sites.

- Data collection of the firm: to understand the effect of the phenomenon on a real context.
- Analysis of the firm's documentation: invoice, data, balance sheets; Interview: CEO, Warehouse managers, Purchasing manager, Automated bottling machines supplier and customers.
- Thesis development: Having availability of information and data was possible to find connections between theory and practice, finding evidences on how the industries are changing.

## 2.2. Primary qualitative data collection

The most crucial function of documentation in case study research is to support and supplement information from other sources. First, papers can be used to confirm the proper names, titles, and spellings of individuals and organizations that may have been referenced in an interview. Furthermore, documents might offer precise information to support information from other sources.

Thanks to the role on the firm of the researcher, purchasing manager, was easy to looking for data and information on the backward supply chain of the firm. The total availability of the management resources, such as ERP system, the managerial software were all the processes of the firm were loaded, helped to discover past information on the actors involved on the case studies and actual ones.

First of all, a list of all the suppliers were drafted, from 2017 to 2022, and a confrontation with the current suppliers were done.

Then the study of the variables (goods, quantities, customers, etc.) took place; for some of them it was not useful to continue the analysis because of the relevance, mainly because they were attempts to search for new sources, for some instead it was important to go deeper.

The analysis of the commercial invoices took a crucial part of this data collection; all the information about suppliers, type of good, quantities and price were in that single document. In this way it was possible to study the continuity of a relationship with a supplier or the progressive phasing out over the years.

To go deeper, it was necessary to interview some actors, such as the warehouse manager and the head of the purchasing division.

The interviews are crucial source of case study data because the majority of the case studies are on human affairs or actions. Interview subjects who are knowledgeable and can offer significant insights on such affairs or activities. The interviewees can also give quick access to the history of these circumstances, which will enable to find more pertinent sources of information.

In explaining how events happened, interviewees are susceptible to bias, poor recall, and poor or inaccurate articulation. Correlating interview data with data from other sources is a reasonable strategy.

The interviews were not on the classical method where there are chosen questions to generically describe the situation, but related to specific goods or actors already highlighted in the ERP analysis.

In the end, the direct meetings with the CEO have helped to the big picture of what happened with a specific stakeholder (supplier, customer) or good. So it was useful to create connection between different variables and their effect on the real business context.

### 2.3. People involved on the thesis and questions

Due to the different roles in the firm, non-structured interviews were done in order to collect deeper information.

- Warehouse manager;

Questions:

1. According to your personal experience, what are the reasons for which the good after being sold can be returned?
2. From which supplier did the supplies arrive more times damaged? And what is the most frequently damage?
3. Have you noticed a difference in the quality of the goods, coming from different suppliers when moved or processed in the warehouse?

- Head of Purchasing division;

Questions:

1. What are the criteria analysed before purchasing a supply?
2. What are the main differences of these criteria between different suppliers?

3. Considering a specific supplier, have you noticed changes in the criteria during the course of your experience?
4. What is the cause of these changes or how are they motivated by the supplier?
5. From which countries do the supplies come?
6. Where does most of the supply come from? Has this always been the case?
7. Why do you prefer to be supplied by one supplier instead of another?
8. During the purchase phase how do you communicate with the suppliers? Describe the process and difficulties if any.

-Truck driver;

Questions:

1. During or after the shipment, do you happen to arrive at destination with damaged supplier? If so, why?

-Customer;

Questions:

1. During the product usage, have you encountered any anomalies? If yes, because of what?
2. It is possible to distinguish a product characteristic between one supplier and another? If yes, which one?
3. During the purchasing phase, do you ask for the origin of the supply?
4. Do you prefer one supplier to another?
5. What do the anomalies involve once they have occurred?
6. What happens when the product is unusable?
7. How do you remedy to the product anomalies?

- Goods' Supplier;

Questions:

1. How do the production processes take place?
2. Do you have quality control processes?
3. What do you do once an anomaly is detected?



4. How many complaints do you receive on average?
5. How do you assist the customer?
6. Do you receive complaints other than the product's case?
7. What is the average customer response time?
8. What is the average lead time once the order has been placed?

- Automated bottling machines supplier;

Questions:

1. How does the bottling process take place?
2. How relevant is the quality of the good in this process?
3. What happens if the good is of poor quality?
4. How do you fix it?

- CEO;

Questions:

1. During the course of your experience, did you notice changes in customer needs?
2. How did you behave once these needs came to light?
3. Which suppliers are you best off with? Why?
4. How are your relationships with your suppliers? Are there differences?
5. Is there a practice in building a relationship with a supplier? Is it always feasible to put it into practice?
6. What are the criteria for the selection of a supplier?
7. Have they always been the same or have they changed over time?
8. Have you noticed complaints from customers about goods from a particular supplier?
9. How do you behave when an anomaly occurs after an order to a supplier?
10. Is this process always feasible?
11. How do you behave when an anomaly occurs after a customer order?
12. Do you have a supplier preference based on customer type?
13. How do you find a new supplier? And what happens next?

Each of them gave a different point of view, only the CEO helped the researcher on connecting the dots.

## 2.4. Thesis Development

After the literature analysis and the data collection, was the time to draft the thesis. The starting point was the draft of the Literature Reviews, the most difficult part, because of the risk to insert those topics which were not helpful at all, but also because of the accuracy and authenticity of the sources.

Then was drafted the explanation of the firm data and the connection between them and the literature in order to describe the case study.

In the end, the layout of the thesis itself.

## 2.5. Methodology Conclusion

In order to catch the phenomenon on a real context was necessary to proceed in the way explained before. The highest risk was to do not find connections between theory and real business life, but thanks to the interviews and the direct experience of the firm this challenge was overcome.

The usefulness of the case study helped to recognize on the real context what the theory just told, highlighting the exact actions and times of the study.

## 3 Case Study

### 3.1. Company

It is developed the real business case of a glass packaging distributor for food. The glass distributor, for privacy reason called GlassCo (GC), is located in Palermo, Sicily (IT).

GlassCo is a SME, with 13 employees, and € 7.601.762 of revenues (2021). The best-selling products are glass bottles, for the bottling of wine, oil, juice or water; the customers of GlassCo are then wineries, oil mills, water sources, producers of soft drinks etc.

In the last years, a considerable part of the revenues comes from the jars, another kind of glass product used to pack honey, jam, preserved food etc.

Beyond these products, GlassCo also sells the complementary goods such as bottle cork, pvc capsules etc, so all the goods useful to complete the packaging for food.

To describe the context in which GlassCo operates, it starts from the supply chain composition of the industry. The stakeholders involved in the chain are: Raw Material supplier – Glass Manufacturer – GlassCo – Customer – Final Customer. Glass Manufacturers practices and Customers' needs are the crucial points which influence GlassCo operations.

Just like a common distributor, the company buys huge quantities of goods from different suppliers, most of the goods is shipped, in full truckload, at the warehouse, 9000 square meters; where are stored more than 700 types of products. One full truckload is basically composed by 26 high pallets of goods or 52 short-pallets, for the Italian market it is preferred to have short-pallets, later it is explained why.

The most common order for GlassCo's customer is less than one FTL, to have a big enough warehouse is necessary for the firm to store different quantities and types of goods, to meet the customer needs and reduce the opportunity cost of a missed order.

### 3.2. Industry

Until 2015 the industry was pretty stable, GlassCo is and was one of the major distributors in Sicily and south Italy, the cooperation between glass factories and distributors were smooth, in particular with Italian manufacturers which shipped to

GlassCo about 20 FTL of goods per month. The 70% of GlassCo revenues came from wine bottles, then the biggest customers were wineries.

After 2015, with the raising of sustainability mission, most of the MNEs starting switching from PET to glass packaging. For example, Heineken and Coca-Cola.

The industry was not ready to absorb this huge request of glass; the glass factories have not the capacity to produce the number of tons for all the market. Year over year the glass factories dedicated less capacity to distributor in order to have more space for MNEs demand. The consequence of this forced GlassCo to change its business model.

### 3.3. Stakeholders

#### 3.3.1. Partners

GlassCo is part of an alliance of Italian glass distributors, called G6, which allow them to cluster their needs and cooperate in the purchasing phase. The alliance is composed by 3 components: GlassCo, a distributor in Calabria, whose revenues are 26.7 million and a distributor in Veneto, whose revenues are 6 million. Thanks to the cluster of needs, the supplier is not dealing with a single distributor which needs 4/5 containers or FTL of goods per month, but with a big customer which needs 5x or more the needs of a single alliance's component.

This alliance allows then to catch the interest of more glass factories and to have a wider portfolio of suppliers, so to increase their bargaining power and reduce the purchasing cost.

Each component of the alliance manages for the whole alliance a supplier, in this way workload is equally shared and the communication with the supplier are smoothly, because the supplier will meet only the same person. This one will ask to the partners to periodically update the budget in order to help the supplier with the production plan.

The benefit of the alliance is not only for the purchasing phase, for example when a shortage of a good occurs, the partners help to each other in order to meet the customer's demand. In some sense they share their stocks. Another example is when partner 1 needs one container more than his budget and partner 2 has some containers available to be surrendered for a mistake in the calculation of the budget's needs, in this way both will benefit from this transaction.

### 3.3.2. Suppliers

GlassCo differentiates its suppliers based on their geographic location. The influence of the transportation cost has a significant impact on the final cost of an order. In particular, the glass being a heavy material with small value, transport cost becomes a relevant factor to take into account before purchase. A first distinction occurs then because of distances. From suppliers outside Europe, GlassCo buys jars and bottles with a capacity of less than 50cl, this is because they are shipped in containers of about 100,000 pieces and the cost of transport is better absorbed. If instead the cost of transport has to be absorbed by a container of bottles of 75cl, 30,000 pcs, the cost per unit of the single bottle would become too high to be able to offer it in the Italian market. In fact, GlassCo, as far as 75cl or higher bottles, prefers to stock up them in Italy, with the exception of Tunisia, that with Sicily has direct navigation routes that make the freight of a container absorbable even from a supply of 30,000pz.

Another distinction can be done by duration of relationship, long-term and short-term suppliers.

The first is that kind of supplier where it is possible to cooperate, in particular each end of the year a budget with GlassCo's needs is drafted and the Manufacturer will produce and ship those trucks of goods for the week established. The suppliers in this first category are Italian glass factories or European and North African glass factories. In order to reach this kind of cooperation, GlassCo deals with at least for three years.

The second kind of supplier, the short-term, is that supplier where GlassCo is not considered in the production plan, as the cases above; but casually depending on the availability of the glass factory, for the common and standard products in the catalogue, GlassCo orders containers of what is available. In this situation, the contact with the supplier is less tight and the relationship is young. It can be argued that this is one of the first stages of the buyer-supplier relationship.

#### 3.3.2.1. How GlassCo build new relationship with suppliers

The G6 is presented as a group of companies, but as a single buyer, to a new glassworks found through different contacts, is not relevant for research purposes. During the presentation, often a video call, it is discussed about numbers and needs and asked to the supplier to provide a catalog and a price list. The G6 after this presentation, discusses the impression of the supplier, whether the supplier seemed reliable or not and eventually if someone is interested in some product in the catalog. Almost always someone is interested in a particular product and makes a minimum order, will do so as a tester for the whole group. This is how it is tested the market, the price, if there are bureaucratic problems at customs, also sampling are shipped at the offices of each company that is part of the G6.

### 3.3.2.2. How GlassCo strengthens a relationship with suppliers

If everything goes smoothly, with few or minimal problems that can be solved, i.e. ask for specific palletizing, the entire G6 asks the available stock of those articles of interest so that greater orders can be carried out and to pull down the purchase price. After a series of orders, if these are processed smoothly, for example no delay with shipments or with the productions, after a year of collaborations the request to be included in your production plan is made. The G6 thus relies on that supplier for those products, the price is more or less fixed, always sensitive to variations due to raw material, but the supplier undertakes to respect the agreed prices. The risk is therefore for both, for the G6 because it relies on a single supplier for that product, and if this does not comply with the agreements the G6 members would be short of stocks for that product; conversely the supplier dedicates part of the production to a product for one or more customers without having the certainty that these will withdraw the entire stock.

### 3.3.2.3. Further step: Investments

GlassCo, which knows its market and its customers, has some leading products that sells in huge quantities, FTLs at a time. Often these products are exclusively produced by Italian factories, whose price is clearly higher than the same product manufactured elsewhere. That's why, after a couple of years in which relations with suppliers have proceeded in a stable and constant way, GlassCo asks to visit the supplier to strengthen their relationship and discuss about investments. Investment means the creation of an ad hoc mould for the supplier's oven, so it is possible to produce exactly that flagship product for GlassCo.

This process implies a long due diligence, costs and confidence in the supplier.

It starts by asking the supplier if has free production capacity for next year for a new product. If the answer is yes, the question arises as to whether it is then prepared to fill it by including in the production plan a new product in which there is the exclusivity of trade. Answers are often affirmative, but from due diligence to implementation, it takes months of negotiations and studies by both the supplier and GlassCo.

The moulds are produced either in Germany or in China and cost about 20,000€, not indifferent as an expense, as this expenditure must be absorbed by more than one million pieces produced per year. The amount of the expenses is always on GlassCo, only in this way will it obtain exclusivity. One mold on average requires, one or two months for the designs and another month for the realization, if produced in China also requires a month of transport. This phases deals with advance payments and without any security that, at the realization of the mold, the supplier then guarantees the number of pieces produced, since there may be external events that do not guarantee the normal conduct of operations. As happened at the beginning of the year, January 2022, with the supplier in Ukraine.

After the creation of the mould, this must be tried to see if the realization of the jar or bottle is as Glassco needs, if something should not go well, the mold should be changed, this lengthens the time and costs.

Then, with the mould ready for use, the supplier, considering GlassCo's needs, plans its production knowing that every month it will have to produce and ship the containers of jars/bottles for GlassCo.

Planning for the supplier is a fairly complex phase to manage, the world of glass is quite seasonal and depends on the primary sector, which is why in some months more of one type of product is required rather than another, and a supplier cannot afford to start producing one product for just "few" pieces for that month, because it is about the efficiency and productivity of the company. This is also the reason why the management of the warehouse has strong impact in the production plans.

It can be argued about seasonal products because the end customers, that are wineries, oil mills or soft drink producers, having to deal with products that come from agriculture, must bottle or pack their product within a reduced time. For example, from mid-September to November, there is a huge demand for oil bottles. Considering the multitude of products to be packed from agriculture it is easy to realize the complexity of the situation.

#### 3.3.2.4. Foreign Suppliers Today

Table 2: Supplier Now

Country/Supplier	Type of relationship	Products
<b>Bulgaria 1</b>	Short-term and cooperative relationship	Jars, small and big bottles
<b>Ukraine 1</b>	Short-term relationship, no cooperativity	Jars
<b>Egypt 1</b>	Short-term and cooperative relationship	Jars and small bottles
<b>Egypt 2</b>	Short-term relationship, no cooperativity	Jars
<b>Tunisia 1</b>	Long-term and cooperative relationship	Big bottles

<b>Lebanon 1</b>	Short-term relationship, no cooperativity	Jars
<b>Turkey 1</b>	Short-term relationship, no cooperativity	Jars

Rather than use the name of the supplier, it is preferred to indicate the country of origin for privacy purposes. This is also possible by the fact that in most cases one country has only one supplier except Egypt. This helps the geo-location of the phenomenon.

As it is shown, most suppliers are "new", but with some it is already feasible a cooperative relationship. So to be included in their production plan and in rare cases make direct investments with them.

All mentioned suppliers are manufacturers of items such as jars, bottles below and above 50cl, but the cost of transport affects the choice of the supplier.

Just think that to transport an FLT from Bulgaria to the south of Italy takes about 3000€, when the goods is worth 8000€, it means about 50% more on the single cost of the product. Another case analyzed is the freight of a container from Egypt to Palermo, whose price increased from 1200€ to 1850€. This makes it unsustainable to work with suppliers too far away.

### 3.3.2.5. Foreign Supplier in the past

These were not always the suppliers, most of the current suppliers are the result of collaborations born in 2020. Before, in fact, the suppliers were mainly Asian where in the first place stand India and China.

Below is GlassCo's list of foreign suppliers in 2017

- India1
- China1
- Tunisia1

For research purposes, it is important to analyze GlassCo's capital flows for supplies from foreign countries. The years 2017 to 2022 are considered as the most relevant for the purposes of the study; before 2017, extrapolated data shows only a constant in capital flows for Asian countries.



Table 3: Capital flows per country/supplier from 2017 to 2022

Country/Supplier	2017	2018	2019	2020	2021	2022
<b>India 1</b>	85768.33 €	110595.4 1€	119186.0 9€	385416.0 7€	0.00€	0.00€
<b>China 1</b>	135673.9 0€	278932.0 3€	58945.42 €	0.00€	0.00€	0.00€
<b>Tunisia 1</b>	7989.48€	253026.2 2€	91436.46 €	122936.9 6€	196665.0 2€	480834.9 4€
<b>Bulgaria 1</b>	0.00€	0.00€	0.00€	44579.70 €	324359.0 7€	258164.5 9€
<b>Ukraine 1</b>	0.00€	0.00€	19656.00 €	153801.9 0€	181599.0 9€	8425.87€
<b>Egypt 1</b>	0.00€	0.00€	7734.92€	114983.7 9€	39484.33 €	624448.4 9€
<b>Egypt 2</b>	0.00€	0.00€	0.00€	99539.92 €	102735.4 2€	92501.46 €
<b>Turkey 1</b>	0.00€	0.00€	0.00€	0.00€	0.00€	206100.3 6€

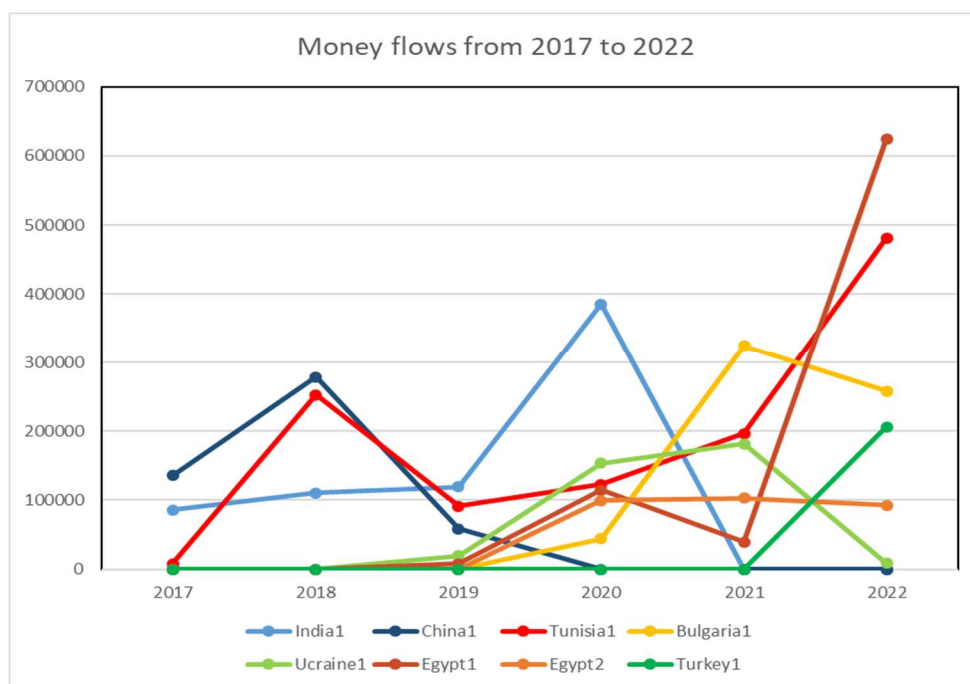


Figure 2. Money flows per country/supplier from 2017 to 2022

Table 4: Capital flows per continent from 2017 to 2022

Continent	2017	2018	2019	2020	2021	2022
Asia	221442.2 0€	389527.4 4€	178131.5 0€	385416.0 7€	0.00€	0.00€
Europe	0.00€	0.00€	19656.00 €	198381.6 0€	505958.1 6€	472690.8 2€
Africa	7989.48€	253026.2 2€	99171.38 €	337460.6 7€	338884.7 7€	1197784. 89€

Africa refers exclusively to North Africa.

### 3.3.2.6. Changes and Analysis

From Tables 3 and 4 it can be seen that the three-years period 19-20-21 is a period of change as regards the origin of the supplies.

Until 2018 it can be seen a prevalence of Asian supplies; more than half came from there, this because the cost of a supply and transport was stable and sustainable; it was

therefore possible to obtain supplies in these countries and to offer products at very competitive prices on the market.

During the three-year period, on the other hand, capitals is beginning to be moved from Asia to Europe and Africa, this is because the cost of transport begins to grow and the quality of goods begins to be a factor to be taken into account to satisfy the market.

Since 2021, there has been a total cancellation of supplies from Asia and a growth of supplies from Europe and even more Africa, which offers competitive products at a lower price than Europe, probably due to the fact that labour has a lower cost.

These tables and the diagram represent the phenomenon of the backward nearshoring, which is the change of suppliers from far countries, in this case Asian, to closer countries to the reference market, Italy.

### 3.3.3. Customers

GlassCo has more than 2000 customers all over Sicily, categorized by product type and quantity. The company deals with big wineries which order more than FTLs (30.000pz) of bottles per month and the small producer which makes liqueurs for pleasure, the quantity ordered is about 100pz. So less than a pallet, so the unit of measure is the termopack.

#### 3.3.3.1. Classification based on quantity ordered

The first category of customers are the ones who order 1+ FTL of the same good; in this situation, the truck does not come to the warehouse, but GlassCo directly communicates the customer's destination to the transport company. So, FTL goes to the glass factory to the customer. GlassCo calls this kind of process "Ghost orders", because the company only manages the official documents and communication without seeing the goods. Here the cooperation between supplier and GlassCo must be extremely efficient. These customers represent the biggest portion of GlassCo revenues, so the accuracy of GlassCo when it is dealing with their orders is very high.

These are those customers who communicate, at the end of the year, their annual needs to GlassCo and in which month they want to receive the goods. All these customers' needs are then clustered and communicated to the glass factories during the meeting about the next production plan, when GlassCo's needs are considered.

The second category is the customer who orders less than one FTL, it means some pallets between 1 and 16. Here the shipment at the warehouse is necessary and then, depending on the location of the customer, one of the three trucks of the GlassCo, with capacity 10, 12 and 16 high pallets capacity, delivers the ordered goods.

GlassCo manages the logistics of the shipment with an allocation of the orders in provinces. The target is to fulfill totally all the trucks before with orders in the same provinces, in this way the cost is amortized, especially for the farthest provinces.

The third category, the last, of customers are the ones who order less than one pallet. In order to meet the needs of these customers, GlassCo thanks to three shrink-wrapping machines, processes smaller quantities of bottles or jars in order to pack 20/30 pieces and serves also this market share. It regards then the households, hardware stores etc. For these kinds of orders, it is very difficult to deliver the order, in fact for most of them is the customer to come in the firm and picking his goods; only for those orders which a pallet of termopack can be built, GlassCo delivers the goods to the customer location. In the last years, this last category has influenced significantly the revenues; the process of packing in smaller quantities allows GlassCo to ask higher prices.

### 3.3.3.2. Customer Analysis and needs

#### Quality

Taking as example the most influential customers, the wineries, it is important to study the processes to understand where GlassCo's products are relevant.

Leaving aside the part of harvesting and vinification, where GlassCo has no influence; during the bottling phase, however, the GlassCo presence becomes relevant when there is glass as packaging.



Figure 3. How the wine bottling process works/Sourced by visual.ly

During each of the phases in the figure 3, being now automated phases, the quality of the glass has a strong impact. The bottles undergo impacts, pressures and movements, are depalletized and then re-dressed, and because of a poor quality, it could happen that the line is interrupted or that the processed product, the wine, is lost. The economic cost is double, inefficiency and waste.

Similar processes of those who do not bottle but pot, so those customers who produce preserves.

For the first and the second category of customers the needs are more or less the same, both have common processes, such as bottling and transport of the finished product. Quality is therefore taken into account when GlassCo decides to purchase glass for these customers.

For the third category, however, being micro-producers, whose processes are not automated, the quality of glass is not so relevant, but still has a specific weight. For processing shrink-wrapping machines, where plastic wraps around glass containers, there is heat to melt the plastic which wraps the containers. This thermal shock could cause the breakage of the container, if the quality of glass is not enough and this leads to a waste for GlassCo, therefore costs to bear.

### 3.3.3.3. Photographic Evidences



Figure 4. Evidence 1/Sourced by GlassCo database



Figure 5. Evidence 2/Sourced by GlassCo database



Figure 6. Evidence 3/Sourced by GlassCo database

Above the photos, taken by customers during their operations.

In figure 4, we notice how a bottle has chipped after the insertion of the cork; in figure 5, of the same customer, the bottle has undergone the complete breakage during the closing phase.

As can be seen in Figure 6, the same applies to the pots, which after being filled undergo breakages during the closing phase, in which the machine exerts pressure to insert the aluminum capsule.

Even worse when the jar comes directly with defects and cannot even be worked, below, figure 7, another photo as evidence.



Figure 7. Evidence 4/Sourced by GlassCo database

#### Transport: influence of quality and more

The transport phase is a process involving the following movements:

- From factory to GlassCo warehouse;
- From warehouse to GlassCo customer;
- From GlassCo customer to end customer;

For the first displacement, the guarantor is the supplier, therefore if they were to happen damages during the transport, this last one would refund GlassCo. However, it happened with foreign suppliers that they did not compensate GlassCo, but that they applied discounts for subsequent orders. Although all of them find a solution to pay back, GlassCo remained with little or no stock available, thus meeting the opportunity cost.

For the second phase, the guarantor is GlassCo that with its trucks delivers the pallets to the warehouses of its customers.

Although the guarantor for the third shift is not GlassCo, however, it is a step that GlassCo takes into account since if there were any damage or loss due to glass, it is certain that the customer would no longer purchase from GlassCo.

In addition to the quality of the glass, another fact that influences the transport is the **palletizing**.

Palletizing means how the glass is arranged in the pallet and there are 3 critical factors inherent in palletizing:

1. Number of layers: there are high pallets with 6 or more layers of jars/bottle, or low pallets with 5 or less layers. The higher the pallet, the more unstable it is, therefore difficult to transport.
2. Quality of the film used to wrap the pallet: being in Sicily, in summer the temperatures increase considerably; the film that wraps the pallet tends to give in, leaving mobility to the containers, this may lead to excessive impact during transport and therefore a pallet falling.
3. To divide one layer from another, there are the plastic interlayers or sheets of cardboard. With the plastic interlayers, there is greater adherence between the pot and the interlayer, so it is difficult to move the jars/bottles. This will make the movement of pallets safer.



Figure 8. Evidence 5/Sourced by GlassCo database





Figure 9. Evidence 6/Sourced by GlassCo database



Figure 10. Evidence 7/Sourced by GlassCo database

In addition, in the Italian market, customers prefer low pallets with plastic interlayers, since the automatic lines recognize only low pallets and are able to depalletize

automatically through the removal of plastic interlayers, this cannot be done with cardboard or high pallets, so the processing is faster and more efficient.

The low pallet is also preferred because of the height of the plant; it may happen that a customer does not have a warehouse high enough to accommodate or move high pallets within the different departments, therefore requires only low pallets and this in Italy is quite widespread.

#### 3.3.3.4. What GlassCco does to prevent these “accidents”

During the process of finding a supplier, the G6 component that makes an order to test the supplier asks for the various palletizations of the available products and data sheets. Here it is possible to understand the modus operandi of the supplier even if it is quite predictable. In fact, many foreign suppliers as well as their customers, prefer high pallets and cardboard interlayers, this is because the packaging, that is platforms and plastic interlayers, are counted in invoice; those in cardboard are not counted.

The alternative to a high pallet are two low pallets, this implies double the wooden platforms present in the invoice. If you also ask for plastic instead of cardboard, the bill is even more corpulent. This explains why a supplier, by default, palletizes its goods with high pallets and cardboard boards.

When it comes to short-term supplier without cooperativity, making requests for modification of palletizing is useless, as the purchase order concerns the stock already in stock, therefore already palletized.

This is why, when the relationship with the supplier is mature enough to include GlassCo's needs in its production plans, GlassCo makes requests for palletizing modification, as there is the feasibility of new palletizing each new production.

However, these are not always accepted for various reasons. First of all, not all countries have plastic interlayers available, their logistics and distribution is based on cardboard and this makes plastic interlayers very expensive. In Egypt, for example, they charge \$5 per interlayer, while in Italy they charge €3.50. Therefore, for economic reasons GlassCo prefers to continue to buy pallets with cardboards.

When the supplier cannot satisfy GlassCo, which once the pallets arrived in the warehouse, depalletizes them and transforms them into low pallets with plastic interlayers. This requires a lot of workforce and time, that is why it is preferred that pallets arrive directly from the factory already well palletized.

### 3.4. Interviews

Most of the information were taken by the role of the researcher in GlassCo, purchasing manager, which keeps the contacts with the foreign suppliers daily with email or online messages, but the relevant data came from the interviews. Thanks to the meetings with employees and stakeholders of GlassCo it was possible to take the stock of the situation.

In order to analyze the possible reasons behind the nearshoring and reshoring of the backward supply chain of GlassCo, the following people were interviewed in order to catch the different point of views.

Thanks to the **warehouse manager** interview, it was possible to understand the reasons behind the returned goods and concerned suppliers and what does he thinks about the goods when he manages the shrink-wrapping machines.

The answers have highlighted a greater presence of supplies coming from Asia between the goods returned, this for how much regarding the past years; today instead they are mainly those goods that come from Lebanon and Africa. When asked about the causes of these returns, quality is the most influential cause.

Personally, he found difficult to move and work different supplies and therefore was able to see the palletizing defects, such as cardboards or pallets too high to be stackable, or the quality of the glass that start to break down when moved or worked with shrink-wrapping machines.

Confirmation of the difficulties in transporting the pallets came from one of GlassCo's **driver**. In fact, when asked about the frequency of trips with damaged goods and possible causes, he explained how palletizing, the quality of film and glass are causes of damage when making the delivery of an order. In particular, the frequency increases in the summer months, since the heat causes the film to break down and therefore decomposes the pallet; as regards non-structural damage to the platform but to the glass containers themselves, because of the road travelled and the movement of goods in the truck it was found that Asian supplies arrived damaged while others did not.

To complete the interviews for GlassCo employees, the **purchasing division manager** was interviewed about the criteria in the analysis before purchasing from a supplier, the differences in these criteria from supplier to supplier, any changes of these criteria over time to the same supplier and any causes.

The answers have evidenced the following criteria: price, cost of the transport and feedback from the customer, quality.

As for the price, it is clear that European suppliers have high price compared to suppliers from Asia in the past, from Africa today. This is mainly due to labor and less automated processes, such as plants, therefore face less fixed costs. In general,

however, there has been a significant increase in the price/ton of glass in the last period, due to the increase in raw materials (electricity, gas, soda). After a recent visit to a supplier in Turkey by a member of the G6, it has come to light that the soda-ash trade in Europe is a monopoly market. So, in the last period it is undergoing considerable increases and the glassworks are reacting by increasing the list prices.

Transport costs, today, are summarized in the table below:

Table 5: Cost of transport today/Sourced by GlassCo invoices (2022)

Continent	North Italy	Tunisia	Alexandria (EG)	China	Bulgaria
Calabria	2000€	X	1200€	19000€	2100€
Palermo	2800€	1200€	1850€	X	X

Calabria is taken as a reference, because is the headquarters of one of the G6 partners that is often used by GlassCo to receive goods from abroad.

For the Northern Italy - Southern Italy and Bulgaria – Southern Italy routes we mean the rent of a FTL (26 pallet places) by road; for foreign routes - Italy we mean the rent of a container (21 pallet places) by sea.

In the past, however, the routes cost:

Table 6: Cost of transport in the past/Sourced by GlassCo invoices (2017-2021)

Continent	North Italy	Tunisia	Alexandria (EG)	China	Bulgaria
Calabria	1200€	X	1000€	3000€	1500€
Palermo	1500€	800€	1200€	X	X

From table 5 and 6, it is possible to notice a significant difference between the past and today. The causes are many, from fuel price increases/Ukraine-Russia war, to economic slowdown due to the pandemic.

Adding today the cost of the good + the cost of the transport, regarding a supply coming from one of the neighboring countries and comparing the same with a supply in Asia, it is clear that the supply in Europe or Africa is more convenient. By comparing instead, the costs that GlassCo must face for an Italian supply, with the foreign one, it

is clear that buying abroad is cheaper. This is the main reason why most of the supplies come from North Africa and Eastern Europe, Bulgaria and Turkey.

The last criteria, the quality, is analyzed thanks to customer feedback, to which GlassCo invites maximum transparency, in order to improve its service. Over time, in fact, it has been understood thanks to the cooperation between the sales and purchasing department, as the supplies from Asia caused many problems to GlassCo customers, which was forced to find and change old suppliers with new ones thanks to coordination with the rest of the G6. Today, however, the quality of glass produced in Italy is higher than foreign glass, especially from Africa; this is why for bottles over 75cl, or GlassCo's flagship products, Italian suppliers continue to be preferred.

Another reason why it is preferred to buy from Italian or European suppliers is the ease of communication and similarity in business processes. As the CAGE Framework theorizes, there were differences in the *modus operandi* between GlassCo and, for example, Asian suppliers. While GlassCo prefers to communicate with suppliers by phone, these last prefer email, this leads to delays in communications and, according to the GlassCo buyer, humanity. GlassCo in fact always tries to make a relationship more personal, so that the supplier puts himself in the shoes of the customer, in fact periodically the CEO of GlassCo visits the suppliers in their own headquarters and meets the people with whom cooperates. Another suffering difference is the calendar or working time. For example, North African countries have weekly breaks on Fridays and not Saturdays and Sundays as in Europe, which means that GlassCo has only 4 days to communicate during a week. In addition, for the countries of North Africa, in summer working time starts from 7.00 to 14.00 and this reduces even more the useful time in which it is possible to communicate. In the past, however, contact with Asian suppliers was reduced to a minimum due to the time difference.

By interviewing external stakeholders, it was possible to understand their vision of the phenomenon.

First of all, a **customer** of GlassCo, who produces industrial preserves and trades with large retailers, was interviewed. Anomalies were treated during the use of glass as packaging and in the transport, remedies to these anomalies, as well as any preferences of suppliers in terms of origin.

The responses confirmed the trends already discussed, namely, anomalies during the process of potting and transport. There has long been talk of the automatic processes that today many industrial manufacturers use to improve efficiency and remain competitive, this automation must therefore be accompanied by a packaging quality that is strong enough to withstand the operations without damage, in particular sterilization and closure.

In addition to the quality, as previously discussed, there is also a preference for palletizing, that is, low pallets with plastic interlayer, so they can insert the pallet directly into the line of potting and depalletize it automatically. Whenever a supply does not correspond to these characteristics, the customer is forced to depalletize and insert in the line the jars manually. Especially from palletizing it is possible to understand the origin of the supplies.

It has been also asked for the remedies that the customer takes when anomalies arise; first of all, the buyer of the customer makes a complaint of the order to GlassCo and communicate which anomalies have been found. Subsequently, GlassCo makes sure that it is a GlassCo supply and understands which GlassCo supplier it comes from, so that the glassworks are also notified. Then, GlassCo will pick up the defective goods and issue a refund to the customer. If requested, GlassCo will deliver a new supply from a different source. In addition, when a break occurred during the potting, the customer is forced to interrupt the line, make sure that no splinter has entered other jars and clean the entire line. This implies not only a waste of resources, but especially of time.

Below there is an evidence in Italian of a complaint e-mail:

Buongiorno,

Con la presente devo segnalare una anomala difettosità riscontrata durante l'utilizzo del vaso 370 to 63 di cui seguito i dettagli:

- Consegnato con DDT num 1340 del
- Vaso 370 to 63 lotto 2206000105
- Anomalia riscontrata: il vaso all'imboccatura presenta una deformazione che non permette il corretto serraggio della capsula.

Nel dettaglio abbiamo la seguente situazione:

- CIRCA 3.000 VASI LAVORATI
- 400 SCARTATI GIA SULLA LINEA DI PRODUZIONE
- 273 SCARTATI POST TRATTAMENTO TERMICO
- 50 BANCALI IN MAGAZZINO BLOCCATI.

In allegato trova inoltre la scansione del foglio pallet utilizzato.

Siamo a richiedere il ritiro di tutti i 50 pallet in magazzino a cui si aggiungono i 673 vasi scartati durante la lavorazione.

In attesa di un celere riscontro porgo

Cordiali saluti

Figure 11. Evidence 8/Sourced by GlassCo database

For these reasons, now customers prefer to ask for origin and palletizing before finalizing the purchase from GlassCo.

In addition to the customer, another stakeholder in the typical value chain of a GlassCo customer, a **supplier of automatic bottling machines**, was interviewed. From this interview important technical details arose during the bottling process.

In particular, the supplier specializes in bottling lines for sparkling or semi-sparkling wines, products that must be bottled under pressure and withstand the pressure of the wine itself. During the interview it was asked to explain the whole bottling process and how much it was dependent on the quality of the glass, the answer was that quality is a determining and a primary factor.

It was explained that during the process, the glass container undergoes two treatments under high pressure, the first to check the condition of the bottle and the second to fill it. Sparkling and semi-sparkling wines require a period of rest in the cellar inside the glass container and it happened that they burst due to the fragility of the glass. Even more serious when the explosion occurs at customers, so when the bottle of wine is already sold, because GlassCo's client would incur legal proceedings. The supplier explained that in 90% of the cases, the explosion however occurs during bottling and not after the bottle has been filled. The cause is also due to the oxygenation of the glass, when this is robust enough, oxygenation does not happen and the bottle does not burst; if the glass is not thick enough, micro-air bubbles are created and the bottle bursts.

Subsequently, a glasswork, in particular a **supplier from Egypt**, was interviewed. The supplier is one of GlassCo's biggest, with a relatively recent relationship but with which it has been cooperation for years, the contact is daily and for months GlassCo is trying to bring the relationship to the point of investing in one or more molds.

During the interview, which took place by phone, it was asked how the production processes and quality control of glass containers, what are the business processes for complaints and how they assist the customer. The answers, that the researcher in primis faces, have been coherent with what are the problems with these suppliers. First of all, there is no automated quality check, but rather operators who check the glass produced with eyes. This increases the risk of finding damaged jars or bottles in pallets. Secondly, complaints were discussed, on average the supplier collects a complaint per customer per month. According to company policy, the goods cannot be returned because they would have to pay the freight of a container to return unusable products to the factory and no refunds are made, because the selling price is already the minimum necessary to have a minimum profit and continue running the business. The glassworks in question, is part of an Egyptian group that trades coffee and the idea of opening a glassworks was born to produce containers to pack the coffee itself, in fact they are not interested in large margins. For these reasons, as a refund, a price reductions are applied for a number of subsequent supplies.

From the interview it is deduced that the center assistance of the customers is the weak point of the supplier, since they have difficulties in the management of the communications because of the number of the staff. For this reason, GlassCo often fails to have immediate contact when needed.

The most recent case in evidence is when containers arrive at the port and must leave the customs, in general a container can stay for 7 days at the port without paying penalties, after 7 days these must be paid. Recently in fact it happened that the containers had arrived, but without original documents for the GlassCo customs agent, necessary for the customs bureaucracy. The documents were delayed and GlassCo had to pay. The fault has been attributed to the supplier that has not sent in time the documents to the agent and in the days in which the containers were in the port, the purchasing division of GlassCo has tried to contact the supplier without receiving answer. The supplier subsequently apologized, blaming the shipping company for delay in issuing these documents and provided GlassCo with a discount on the next invoice equal to the amount paid to customs. However, after the economic damage was remedied, GlassCo was unable to deliver those orders that were already scheduled when the containers were parked and many GlassCo customers then refused those supplies because they had already remedied.

Finally, **the CEO of GlassCo** was interviewed, with whom it was possible to take stock of the situation and have a big picture of the phenomena.

During the interviews, that have been carried out in various days to touch various topics in isolated way, questions have been asked on the changes of the customer needs, changes of the suppliers and the various procedures in existence.

It turned out that during the twenty-year experience of the CEO the needs of the customer have radically changed, before a low-cost product was requested, since the only way to differentiate was to offer to the final customer a low price, now they are looking for a top quality product given the automatic bottling lines and the current phenomenon of differentiation, in which the product have to be unique and as original as possible. This last phenomenon happens mainly with customers such as wineries and oil mills, who having a really competitive market look for particular bottles in order to be different. The problem arises when the foreign glassworks have for most of the moulds for standard products, that are easier to sold in any market, not only the Italian one. GlassCo is therefore forced to buy these items at a high price from Italian glassworks to meet this demand, even if does not stop looking for foreign suppliers that can produce this type of products.

During the inherent interview to the suppliers, it is deduced that the preference is for the Italian suppliers regarding the quality, easiness of communication and customer service, while for those foreign ones when it comes to costs. It has also treated as



GlassCo deals with different suppliers: with the European suppliers, it is the customer to host the supplier, while for the foreign ones it is the opposite, it is the customer to visit to the supplier in order to strengthen the relationship. It is the CEO's personal goal to forge as many relationships as possible to secure a cooperative relationship with the supplier.

It often happens that it is not easy to make a relationship with supplier, because of the cultural and geographical distance, this emerged when it came to the Asian suppliers. Because of these distances that the CEO found himself in the position of having to replace them. For this reason, GlassCo are looking for suppliers who can offer medium quality products at competitive prices, close enough in culture and distances to not face high transport costs.

Finally, the CEO confirmed numerous complaints about Asian supplies in past years, and was forced to reimburse customers invoiced amounts for those orders of goods that were unusable. On the contrary, when it came to exposing GlassCo problems/disputes to the supplier, these were not open to solutions on the operations, but only to price reductions for subsequent supplies, without being able to act on the products. This solution has therefore not put an end to the problem of quality.

### 3.5. India 1 Case

Until 2019 GlassCo bought supplies from India 1, their relationship developed as in the processes described before, reached the point where GlassCo's CEO visited the glassworks in 2018. From the visit, which discussed the price, quantity and changes of palletizing, it emerged that the Indian supplier, despite having a lot of capital, preferred not to use automatic palletizing lines to offer more jobs to the population. After a series of meetings in which the need for the following year was agreed, it was time to receive the first order of supplies. The supplier was specialized in bottles of beer from 33cl cylinder model, and the order was of 10 containers.

At that time in Italy it was not easy to find a supplier with this article and the CEO of GlassCo wanted to buy it in big quantities in order to satisfy as many requests as possible, here are the reasons why Glassco had ordered large quantities.

On the arrival of the first supply at the GlassCo warehouse, as the manager testifies, 15% of the supplies arrived broken, unusable. The conditions were so critical that when the containers were opened, workers could not be close to the container's doors

because there was a risk that the pallets fall. The warehouse manager also stated that due to the quality of the glass, it was impossible to unload the pallets without causing further damage to the goods.

GlassCo tried to get in touch with the supplier's after-sales to ask for explanations and a solution to the problem, but without success. The supplier could not repay the damage. GlassCo also asked to legal experts how to act, but was advised to do not start a legal action without having certainty of success. In fact, after an analysis at the glass experimental station in Murano, it was found that the glass had the minimum tolerance necessary to be traded, but still met the parameters. The supplier offered a price reduction to cover the damage caused to GlassCo, but GlassCo realised that it could no longer cooperate with the supplier because of the quality, the glass was too fragile that it could not withstand sea transport and was not sufficiently legally protected. Then the relationship was interrupted.

Despite this, Glassco decided to not sell these products to bottle beer, but to keep the tomato sauce, therefore to satisfy that market share that does not use machines to bottle but works by hand, the households. GlassCo's employees depalletized the pallets, they slammed between them the bottles and those that did not break were palletized again or packed them in termopacks. It was found that 1 out of 2 bottles brokes.

Still today, Glassco has stock of this 33cl beer, which sells at very low price to recover expenses, but losses of 85,000€ have been calculated on this transaction.

Over time GlassCo has replaced India with Egypt<sup>1</sup>; as the transaction cost theory, the switching of supplier for GlassCo had higher benefit than continuing the relationship with Indian supplier. If GlassCo had invested in India, the near-shoring of the supplier in Egypt would reduce the hold-up problem because of the higher control of GlassCo on an investment closer to home.

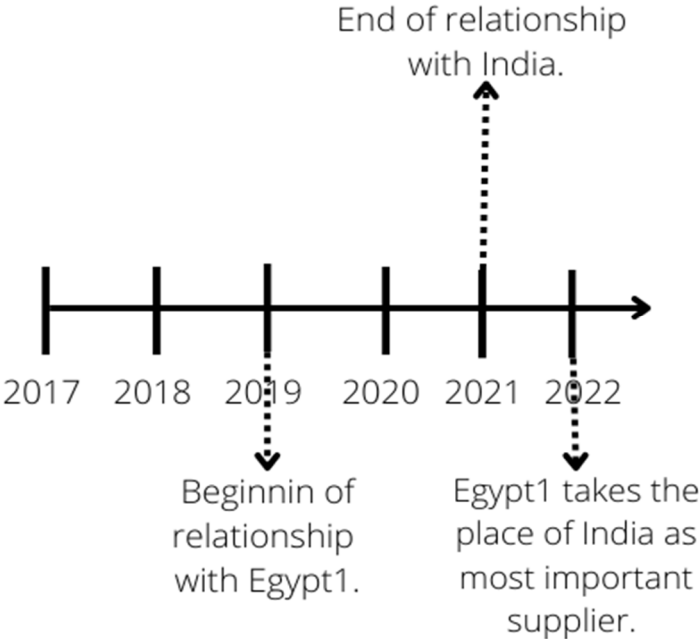


Figure 12. Time-line relationships between GlassCo-India, GlassCo-Egypt1.



## 4 Conclusion

Thanks to the GlassCo business case, in which was analyzed the whole supply chain and the relationships with each stakeholder, may be confirmed the trend of reshoring and nearshoring of the backward supply chain in developed economies.

The literature highlights a multitude of drivers, coherently the evidences in the research were the quality, due to innovation, and the communication, due to distances, as well as transportation costs.

The low production capacity of Italian glassworks dedicated to distributors, due to the increase in demand by MNEs, has put at risk the stability of GlassCo, which through the constant research for suppliers continued to offer a wide products portfolio. On the other hand, looking too far has led to a decreasing of quality that ended up discrediting the image of GlassCo, with significant economic consequences.

Despite this, the ability of building and strengthening the relationships with its stakeholders allowed GlassCo to apply a dual sourcing strategy. In particular, the cooperation with glass factories in Italy for high quality supplies for A customers and foreign suppliers, closer to Italy, which can offer a better product in terms of quality-price, allows the firm's growth in this dynamic and competitive environment, moving away from the Asian suppliers.

The strategy consists in still offshore the purchasing of goods which can absorb the transportation costs, exploiting the low labour costs, compared to home market, of closer foreign countries, while continuing the relationships with Italian supplier for those product which cannot be possible to buy overseas. This enables to reduce the stock-out costs, to have a wider stock of different types of products, without dealing with difficult communications, such us different processes and time differences, and legal protection. A closer supplier has allowed GlassCo to partially changes its source of revenues, from drinks (bottles) to food (jars) and so to differentiate their source of income.

A closer supplier also allows to have better control over investments and so to increase the exclusive products to dominate the market.

Anyway, the results may be influenced by the specificity of the industry, so further studies are necessary to confirm the trend of phenomenon.



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