

**UNIVERSITAT  
JAUME·I**

**PLAN TO IMPROVE BUSINESS DIGITALIZATION .  
APPLICATION TO THE COMPANY "*TRANSPORTES CAF LARA S.L.*"**

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# **INDEX**

|  |                 |
|--|-----------------|
| <b><u>A. INDEX OF TABLES</u></b>   | <b><u>2</u></b> |
| <b><u>B. INDEX OF IMAGES</u></b>   | <b><u>2</u></b> |
| <b><u>C. INDEX OF GRAPHICS</u></b>   | <b>3</b>        |
| <b><u>EXECUTIVE SUMMARY</u></b>  | <b>4</b>        |
| <b><u>1. ANALYSIS OF TRANSPORT CAF LARA S.L. AND THE SPANISH TRANSPORT SECTOR</u></b>                | <b>6</b>        |
| <b><u>1.1. Internal analysis of the company</u></b>  | <b>6</b>        |
| 1.1.1. Introduction to the company   | 6               |
| 1.1.2. Mission, vision and strategic objectives  | 8               |
| 1.1.3. Company Resources   | 9               |
| <b><u>1.2. External analysis</u></b>   | <b>15</b>       |
| <b><u>1.2.1. Microenvironment</u></b>  | <b>15</b>       |
| <u>1.2.1.1. The Transport Sector in Spain.</u>   | 15              |
| <u>1.2.1.2. Supply and Demand in the Road Transport Sector in Spain.</u>                             | 16              |
| <u>1.2.1.3. Competitors.</u>   | 18              |
| <u>1.2.1.4. Customers and segmentation</u>   | 22              |
| <b><u>1.2.2. Macro-environment</u></b>   | <b>27</b>       |
| <u>1.2.2.1. Political Environment</u>  | 27              |
| <u>1.2.2.2. Legal Environment</u>  | 30              |
| <u>1.2.2.3. Economic Environment</u>   | 32              |
| <u>1.2.2.4. Socio-cultural Environment</u>   | 35              |
| <u>1.2.2.5. Technological Environment</u>  | 36              |
| <u>1.2.2.6. Environmental setting</u>  | 37              |
| <b><u>1.3. SWOT</u></b>  | <b>39</b>       |
| <b><u>2. STUDY OF NEW TECHNOLOGIES APPLIED TO LOGISTICS</u></b>                                      | <b>40</b>       |
| <b><u>3. IMPROVEMENT PROPOSAL FOR TRANSPORTES CAF LARA S.L. IN REFERENCE TO NEW TECHNOLOGIES</u></b> | <b>45</b>       |
| <b><u>3.1. Objectives of the proposal</u></b>  | <b>45</b>       |
| <b><u>3.2. Improvement actions for the company</u></b>   | <b>49</b>       |
| <b><u>3.3. Budget for the Actions</u></b>  | <b>52</b>       |
| <b><u>3.4. Action Schedule</u></b>   | <b>54</b>       |
| <b><u>3.5. Future introductions of new technologies</u></b>  | <b>55</b>       |

|  |           |
|--|-----------|
| <b><u>4. CONNECTION WITH THE DEGREE</u></b>        | <b>56</b> |
| <b><u>5. BIBLIOGRAPHIC REFERENCES</u></b>          | <b>57</b> |
| <b><u>6. ADDITIONAL SOURCES OF INFORMATION</u></b> | <b>66</b> |

## **A. INDEX OF TABLES**

**Table 1. Important data of the transport sector in Spain in 2021.**

**Table 2. Types of road freight transport**

**Table 3. Number of Transport companies in Spain by provinces.**

**Table 4: Segmentation of Clients in the transportation sector and identification of the segments to which Transportes CAF Lara addresses.**

**Table 5: Segmentation of Transportes CAF Lara.**

**Table 6. Transport taxes in Spain (2022)**

**Table 7: Evolution of the interannual variation rate of Transport operations with load and empty according to type of displacement.**

**Table 8: Growth in employment in the land and pipeline transportation sector in Spain (2018-2019).**

**Table 9: SWOT**

**Table 10: New technologies in transport.**

**Table 11: Proposed Objectives**

**Table 12: Recap of customer segments with Range.**

**Table 13: Proposed Actions.**

**Table 14: Budget for the Actions**

## **B. INDEX OF IMAGES**

**Image 1. Location of Transportes CAF Lara S.L**

**Image 2. Carlos Lara before the constitution of the company**

**Image 3. The truck fleet of CAF Lara**

**Image 4. Diesel Plus screenshot.**

**Image 5: Map of the Facilities**

**Image 6: Trans-european transport network.**

**Image 7: Network of Spanish highways and highways.**

**Image 8: Future technologies**

## **C. INDEX OF GRAPHICS**

**Graphic 1. Organization chart of Transportes CAF Lara S.L.**

**Graphic 2. Evolution of the billing of Transportes CAF Lara S.L (2015-2021)**

**Graphic 3. Evolution of the quantity of goods transported in Spain (2017-2021).**

**Graphic 4. Competition levels of "Transportes CAF Lara S.L".**

**Graphic 5. Distribution of *Transportes CAF Lara's* clients.**

**Graphic 6: Evolution of CO2 emissions in Spain by road transportation and the public supply of heat and electricity.**

**Graphic 7: Choice of the best technologies to apply at CAF Lara.**

**Graphic 8: Experience Map before proposal.**

**Graphic 9: New experience Map.**

**Graphic 10: Actions Timing**

## **EXECUTIVE SUMMARY**

### **PURPOSE**

The purpose of this project will be to update and improve processes and relationships with customers of a freight transport company, through the use of new technologies and marketing actions.

### **ANALYSIS**

After understanding and analyzing the company under study, *Transportes CAF Lara S.L.* and an interview with the manager of the company, we came to the conclusion that the company needs to modernize its communication strategy with the client, as well as optimize its information processing tasks, which represent an excessive weight in its daily work.

This need, in addition to the internal analysis, is also justified in the external analysis. This shows that investment in new technologies that automate processes is constantly increasing. In addition, the facilities in terms of route optimization or government aid will make the growth of companies in the transport sector less complicated.

As a result of this idea, an investigation of the technologies that are being implemented today in logistics has been carried out, making a discrimination of these and selecting some that will be more feasible to use in the following proposal, among which we highlight: The implementation of an EDI (Electronic Data Interchange) system, modernization of Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM), implementation of a chain of omni-channelized activities, use of the Electronic Transport Document (DET) to the detriment of carrying the physical paper documents, geolocation, etc.

### **PROPOSAL**

#### **- OBJECTIVES**

After this investigation, and in accordance with the vision, mission and general objectives of the company, we can formalize an improvement proposal. To this end, work will be carried out to achieve the following objectives:

1. Reduce the time spent on information processing by 20%
2. Increase clients categorized as "Gold Clients" by 30%
3. Increase up to 5 stars the satisfaction of customers categorized as "Gold Customer"

#### **- INDICATORS**

The indicators that will mark whether these objectives are met will be, respectively: the % of weekly hours dedicated to processing information, the % of customers who work with *Transportes CAF Lara* between 3-5 days a week, and the average score (in stars) in the survey monthly satisfaction. All this will be justified throughout this project.

## - ACTIONS

To achieve the first objective, we will develop various actions related to the incorporation of technologies in the service provision processes that automate certain processes.

Among these: The use of an App that facilitates the automation of communication between the carrier and the company, increase the functionalities that were being given to geolocation, Use the DET to the detriment of paper delivery notes, Automate the confirmation response of unloading the truck to the client through email marketing and the implementation of EDI in the treatment of monthly invoicing

For objectives 2 and 3, related to the customer, two joint actions are developed, which consist of a 4% discount on the monthly amount, and access for "Gold Customers" to the truck's route in real time. On the other hand and in addition to this, the action of launching email marketing campaigns is developed to help achieve objective 2 (increase the share of "Gold Clients"), and for objective 3 an action to be carried out in the long term. This action will be based on permanently increasing to 7% the discount given to "Gold Clients" after their 5th year as a client in this category, to reward their loyalty and help achieve the general objective of the company to improve customer loyalty, as well as to increase their annual income by 5%.

## **STRUCTURE**

This Plan will begin with an internal analysis of Transportes CAF Lara S.L, as well as an external analysis of the transport sector. The latter is subdivided into an investigation of the microenvironment and macroenvironment (political, legal, economic, sociocultural, technological and environmental environment). We finish the analysis with a SWOT that will allow us to have a panoramic view of the conclusions derived from the investigation.

After this, we present a table that summarizes a study on the new technologies that are being implemented in logistics in general, and in Freight transport in particular. The most interesting are extracted from these, to include them in the application proposal to the company.

Finally, we will finish with the proposal that we have previously summarized with its respective objectives, actions, budget and timing.

At the end of the project we find the bibliographical references and additional sources of information.

## **1. ANALYSIS OF TRANSPORT CAF LARA S.L. AND THE SPANISH TRANSPORT SECTOR**

Before starting with the analysis of the new technologies we are going to make a deep contextualization, both of the company that is going to be analyzed, and of the sector of the transport of goods by road in general.

We will start by introducing the company Transportes CAF Lara, talking about its objectives, its mission, vision and resources. Later we will analyze the micro-environment with its customers, competition, market and trends. Finally, in the macro-environment we will talk about the political, legal, economic, sociocultural, technological and environmental environment, closing this section with a situation analysis (SWOT).

### **1.1. Internal analysis of the company**

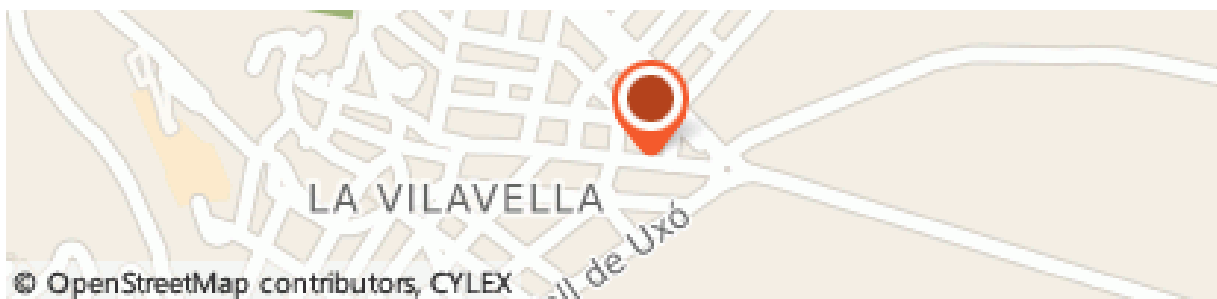
To know the company better we have to know how it is created and what are its objectives that drive its economic activity, as well as the resources with which it is sustained.

All the information described in the following section has been prepared with primary information obtained from a personal interview with the company Transportes CAF Lara S.L., unless otherwise indicated.

#### **1.1.1. Introduction to the company**

Transportes CAF Lara S.L. is a small transport company located in La Vilavella, a small town in the province of Castellón, which was formed in 2009 from its family origins by Carlos Lara and continues today by his three sons Juan Carlos, Adrian and Fidel Lara.

**Image 1: Location of Transportes CAF Lara S.L.**



*Source: Cylex (2021).*



The initiative began when Carlos Lara decided to start his profession as a transporter acquiring his first truck. After a few years it was her children who followed her steps and in 1999 she became a S.L. in the Mercantile Registry. From that moment they were increasing their fleet of trucks, as well as their infrastructure and facilities.

**Image 2: Carlos Lara before the constitution of the company.**



*Source: Caflara.com (2022)*

Today the company transports mainly in the autonomous area of the Valencian Community but also in other regions of Spain today giving special importance to the Balearic Islands, Aragon, Catalonia, Cantabria, Navarre, Murcia, Madrid and some areas of the South.

One of the attributes on which its competitive advantage is based is the great variety of goods it transports, because its trucks are suitable for the transport of a great diversity of merchandise. Among the elements transported we can highlight: Tiles, fruits (especially oranges), raw material for construction, furniture, etc. However, its main source of competitive advantage and on what is based its main objective is trust and dealing with customers, so we could say that Transportes CAF Lara is a transport company expert in relational marketing due to its journey over the years and the familiarity that follows.

**Image 3: The truck fleet of CAF Lara**



*Source: Own elaboration*

### **1.1.2. Mission, vision and strategic objectives**

As we have mentioned in the previous section, CAF Lara finds its source of competitive advantage in the close relationship with its customers, so it is to be expected that both its objectives, mission and vision are aligned with this aspect.

With this, we could define the mission of the company as:

“Adapt road transport to any type of merchandise, to adjust to the specific requirements of each client”.

On the other hand, as the manager of Transportes CAF Lara told us, the company's vision can be summed up as follows:

"Become the transport company with a better portfolio of loyal customers from the competitive range that the company has."

These statements confirm the importance that the company gives to customer satisfaction factors, since being a B2B business model, the relationship with these customers is usually

medium-long term, and therefore relational marketing will play a fundamental role in the development of this type of company.

Finally, we will refer to the objectives. The objectives to be set in a company should be SMART (Specific, Measurable, Attainable, Realistic and Timely), so as far as the most subjective factors are "Attainable" and "Realistic", the objectives will have to take into account that we are talking about a small company that does not have the productive capacity that holds a larger one. For this, our primary source, the manager of the company, has indicated the following objectives that Transportes CAF Lara has for the current year:

- 1) *Increase the portfolio of loyal customers by 5% compared to the previous year, for 2022..*
- 2) *Increase revenue by 5% by 2022.*

After knowing the objectives of the company, we will develop in the last section a plan of actions to follow, relating them to the objectives of this project, which is the implementation of new technologies in traditional transport companies, as is the case of CAF Lara.

### **1.1.3. Company Resources**

En *Transportes CAF Lara* encontramos recursos de muy diferente origen, entre ellos vamos a destacar los Recursos Humanos, los Recursos Económicos, los Recursos Tecnológicos, Recursos Medioambientales, Recursos Productivos y Recursos de Marketing.

- **Recursos Humanos.**

In *Transportes CAF Lara* we find resources of very different origin, among them we will highlight Human Resources, Economic Resources, Technological Resources, Environmental Resources, Productive Resources and Marketing Resources.

- **Human Resources.**

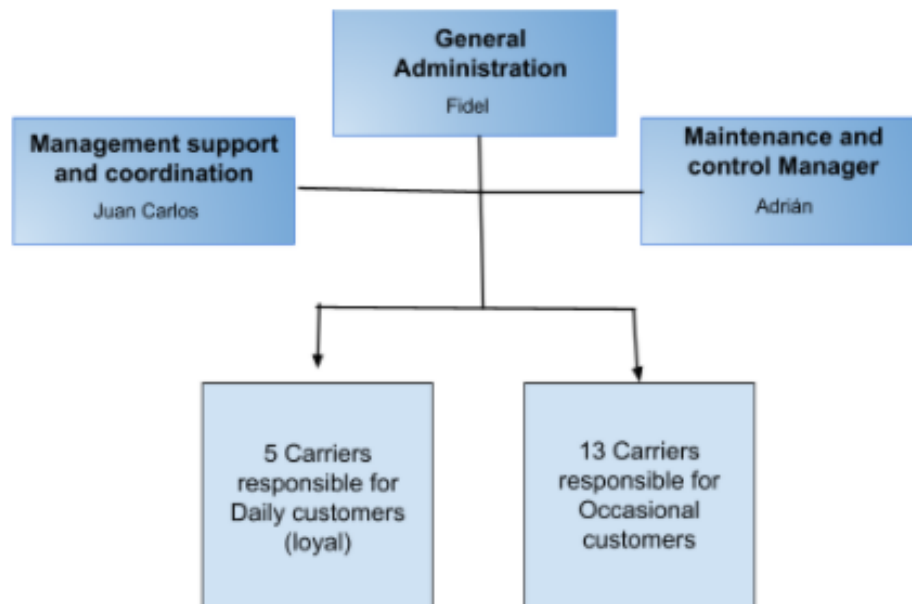
As we have explained in the introduction to its beginnings the company was not constituted as an S.L. simply the four members of the family were registered as

self-employed and had their own vehicle to carry out goods transport services by road.

From 1999 Transportes CAF Lara S.L. was constituted until now in 2022 the workforce consists of 18 additional drivers in addition to the three brothers of the family unit who have different jobs in the company.

The evolution of the workforce has always been constant over the years, with one or two employees being up or down between one year and the next. At present, an organizational chart could be drawn up as follows:

**Graphic 1: Organization chart of Transportes CAF Lara S.L.**



*Source: Own Elaboration.*

- **Economic and financial resources.**

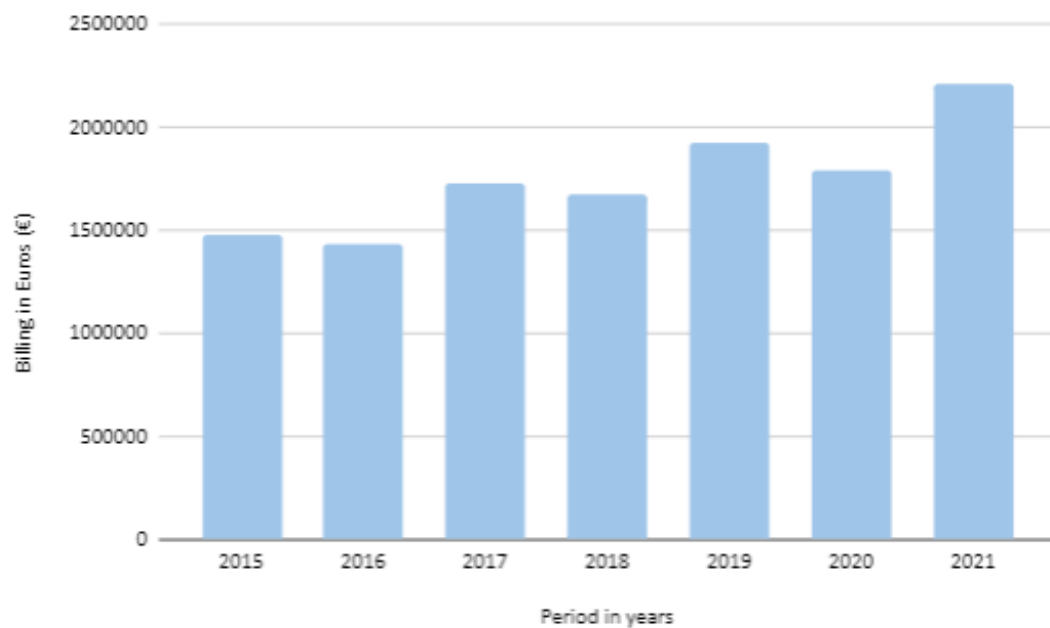
After analyzing the balance sheet of the last year of economic activity provided by the company we can draw the following conclusions:

- The company has real estate investments in buildings worth more than €100,000 and in long-term financial investments of almost €2,000
- The computer applications that the company has are fully amortized so we can say that they have reached the end of their residual value and that they should be replaced by new ones is where the role of the realization of this project begins.

- It should also be noted that there is a lot of debt, both active and passive, since in this sector it is difficult to pay cash. The same applies to the issue of customer payments.

In addition, it is worth mentioning the evolution in the company's turnover in recent years. For this we will show the data visually in the following graphic 2.

**Graphic 2: Evolution of the billing of Transportes CAF Lara S.L. (2015-2021)**



*Source: Primary source.*

We can observe how the trend of the company from the year 2015 to the present is to grow one year and the next to descend slightly to rise again above the previous ascent and so on until in 2021 we find an even bigger ascent than usual, Specifically in the last year invoiced 2.206.333,4 €.

- **Technological Resources.**

Among the technological resources we can find elements of different origins. We can differentiate between:

- **Elements for office use** such as computers, printers or internet connection.
- **Control elements** such as surveillance cameras and satellite control of all vehicles in real time.

- **More advanced software**, among which we highlight "Meribia SQL Transport" that is used for the billing of trips, "Wtransnet" which is a platform to find trips or to optimize existing loads.

In addition to these highlights "Diesel Plus" which is a program consisting of controlling the refueling of each vehicle. For the joint use of the latter program, CAF Lara has its own refueling system in its facilities. In this refueling system each driver has a personal microchip placed at the pump. With this the machine detects which driver, and therefore which truck has been reported and in what quantity. All this information can then be consulted from the office computer with the "Diesel Plus" program.

The following image 4 shows a screenshot of the program provided by the company, where we can see that it indicates the vehicle, driver and right the consumption of each.

**Image 4: Diesel Plus screenshot.**

| TRANSPORTES CAF LARA, SL |         |                         |          |              |         |           |         |            |         |
|--------------------------|---------|-------------------------|----------|--------------|---------|-----------|---------|------------|---------|
| SERVICIOS                |         | Estaciones:             |          | Fecha inicio |         | Fecha fin |         | Consumo    |         |
| Estación propia:         |         | La Vilavella            |          | Fecha inicio |         | Fecha fin |         | Consumo    |         |
| Consola:                 |         | GK-7PLUS                |          | Bonifica     |         | Transv    |         | 300 230,00 |         |
| Producto:                |         | Gasóleo A               |          | Vehículo     |         | Consumo   |         | 300 230,00 |         |
| Fecha                    | Usuario | Vehículo                | Consola  | Producto     | Consumo | Consumo   | Consumo | Consumo    | Consumo |
| 09/02/2022 14:07:45      |         | 0004                    |          |              | 590     | 32,62     |         |            |         |
| 09/02/2022 15:05:48      |         | 520762 Km La Vilavella  | GK-7PLUS | Gasóleo A    | 400     | 0,00      | 2,30    | 230,00     |         |
| 09/02/2022 16:01:28      |         | 7309911 Km La Vilavella | GK-7PLUS | Gasóleo A    | 190     | 39,32     | 06,40   | 0,00       |         |
| 09/02/2022 19:02:47      |         | 571749 Km La Vilavella  | GK-7PLUS | Gasóleo A    | 020     | 23,29     | 32,19   | 39,32      |         |
| 10/02/2022 9:00:05       |         | 361206 Km La Vilavella  | GK-7PLUS | Gasóleo A    | 000     | 24,89     | 140,020 | 24,89      |         |
| 10/02/2022 9:47:13       |         | 762086 Km La Vilavella  | GK-7PLUS | Gasóleo A    | 000     | 24,89     | 456,000 | 24,89      |         |
| 10/02/2022 12:06:00      |         | 299246 Km La Vilavella  | GK-7PLUS | Gasóleo A    | 000     | 6,95      | 21,000  | 6,95       |         |
| 10/02/2022 16:03:20      |         | 3092 Km La Vilavella    | GK-7PLUS | Gasóleo A    | 000     | 6,95      | 2,100   | 210,00     |         |
| 10/02/2022 17:25:05      |         | 1432596 Km La Vilavella | GK-7PLUS | Gasóleo A    | 000     | 0,00      | 2,110   | 0,00       |         |
| 10/02/2022 17:27:13      |         | 1432596 Km La Vilavella | GK-7PLUS | Gasóleo A    | 000     | 210,00    | 0,710   | 0,00       |         |
| 10/02/2022 17:40:01      |         | 1432596 Km La Vilavella | GK-7PLUS | Gasóleo A    | 000     | 0,00      | 366,860 | 25,39      |         |
| 10/02/2022 17:55:55      |         | Km La Vilavella         | GK-7PLUS | Gasóleo A    | 000     | 0,00      | 43,900  | -0,09      |         |
| 10/02/2022 18:21:54      |         | 119 Km La Vilavella     | GK-7PLUS | Gasóleo A    | 000     | 0,00      | 15,250  | 0,00       |         |
| 10/02/2022 19:44:15      |         | 299675 Km La Vilavella  | GK-7PLUS | Gasóleo A    | 000     | 0,00      | 347,880 | 81,09      |         |
| 11/02/2022 4:57:49       |         | Km La Vilavella         | GK-7PLUS | Gasóleo A    | 000     | 0,00      | 54,160  | 0,00       |         |

Source: Own elaboration with primary source.

- **Environmental Resources.**

With regard to environmental resources, we note that all the company's facilities are illuminated by alternative energy sources, specifically, they have an installation of solar panels to provide such light in their infrastructure. In addition, their vehicles make use of AdBlue to contribute to the elimination of fuel emissions, although currently this is already mandatory by Spanish legislation. Finally, the company also

has a system of filtering the waste water caused after cleaning its vehicles so that the water that passes into the sewers is filtered and therefore not just polluting.

- **Productive Resources.**

First of all, the company has a fleet of 19 trucks, 22 trailers and 2 company cars. All this is located on a 5,000 m<sup>2</sup> plot, in which we can also find a warehouse for the material, as well as a small workshop.

Within this we can find all kinds of tools and machines, such as a tire changer or a wheel screwdriver and various transportable forklifts.

Finally, in the administrative part, the company also has an office where all administrative issues are managed.

**Image 5: Map of the Facilities**



Source: Google Maps

- **Marketing Resources**

To talk about marketing resources we will refer to the elements of the marketing mix, that is, price, service, communication and distribution.

In reference to this, we will talk about the service offered by CAF Lara.

The transport service can be requested from the administrative manager either by phone, email or whatsapp. The trip is then approved or not, depending on whether you have available personnel and a free truck with the necessary conditions for that type of merchandise.

Regarding distribution, in this particular case, we can see that there is a close relationship with the service, since this consists of transporting to the destination. With this, we can say that the location where the service is provided is in the facilities of those clients who request it.

As we will see in the section on clients, the Transportes CAF Lara S.L company has a large part of its client portfolio that are fixed and to whom daily freight transport is carried out, while others are occasional clients. For this reason, a number of trucks and drivers are reserved for such customers.

The company's service is considered by its most loyal customers to be of high quality, since in addition to very competitive prices, Caf Lara places great emphasis on treating its customers, adjusting to them one hundred percent to provide them with a service that as much as possible, so their clients are usually happy to work with them.

Speaking of prices, as we have just mentioned, it is considered that the company has competitive prices and an impeccable service quality-price offer, which leads many customers to repeat the service. However, we will point out that, in certain areas, such as the Balearic archipelago, prices are not so low compared to those of the competition, but in this sense, Transportes CAF Lara offers the speed of outbound and return of its containers that other companies in the their competition fails, as customer testimonials claim.

Finally, we will mention the company's communication policy, which lacks updates compared to what other companies do. The company continues to opt for direct



marketing consisting of public relations-style or word-of-mouth visits to companies. Although it may seem that they are somewhat obsolete or simple, the company affirms that they are the essence of its business, since it is based on quality and trust relationships with its clients, and they want to ensure that they know them personally, which It builds trust between both parties. However, we will continue to question this aspect throughout this project.

## **1.2. External analysis**

The purpose of this section is to contextualize the elements external to the company in order to better understand the current situation that surrounds it, and thus be able to offer solutions in terms of optimal new technologies, which will be developed in later points.

### **1.2.1. Microenvironment**

In the microenvironment we will analyze those external elements, such as market, demand, competition, etc. that are in connection with the analyzed company.

#### **1.2.1.1. The Transport Sector in Spain.**

The Spanish logistics sector has advantages over the other countries of the European Union both due to its strategic geographical position and the quality of its infrastructures. Its strategic geographical position means that its location on the territorial map favors access to a global market of more than 500 million European consumers. In addition, Spain boasts connectivity in the trans-European transport network (TEN-T) since it comprises two of the nine European corridors: the Atlantic and the Mediterranean. The Atlantic offers connections between the Iberian Peninsula with France and Germany and the Mediterranean connects the Spanish ports with Africa and central Europe.

On the other hand, Spain has an extensive network of transport infrastructure where its 46 ports and 152 logistics parks represent more than 80 million square kilometers of surface. These logistics parks are mainly related to maritime modes and road transport. To finish with the introduction to this point, it should be noted that Spain ranks 18th in the world for its logistics performance. (Galván. 2022)

Besides, in reference to the contribution to the GDP of the transport sector, we can say that it represents 7.9%, although this figure would mean 10% if the logistics activities involved in carrying out the transport activity are considered. We can also add that this sector generates

almost 1 million jobs and there are currently approximately 197,000 companies in the sector, as shown in table 2 as a summary. (Galvan. 2022).

**Table 1: Important data of the transport sector in Spain in 2021.**

| APORTACIÓN AL PIB ESPAÑOL | CIFRA DE NEGOCIO EN MILLONES DE EUROS | PUESTOS DE TRABAJO GENERADOS POR EL SECTOR LOGÍSTICO | NÚMERO DE EMPRESAS DEL SECTOR TRANSPORTE |
|---------------------------|---------------------------------------|--|--|
| 7.9%                      | 111.000                               | 10.5% de los empleos en España                       | 197.000                                  |

Source: Galván (2022).

Finally, in this section we cannot forget to talk about some of the transport trends, although these are mentioned in more depth in section 2.

In the first place, we will talk about **digitization**, which allows merchandise to go from anywhere on the planet directly to a city and to a particular user (Soriano et al., 2021). Another point to highlight is **sustainability**, which could currently be considered one of the great challenges for logistics: "Green energy is the basis of CO2 neutrality" (Bengoa, 2021). We can also allude to the growing requirements of effectiveness in **delivery times**, however, we are currently in a context where many bottlenecks are generated and there is a shortage of raw materials and this causes traffic to suffer delays. Despite this, one of the most significant trends for the near future is omnichannel, due to the evolution of customer purchasing habits, which in turn also generates new opportunities that are yet to be discovered.

#### 1.2.1.2. Supply and Demand in the Road Transport Sector in Spain.

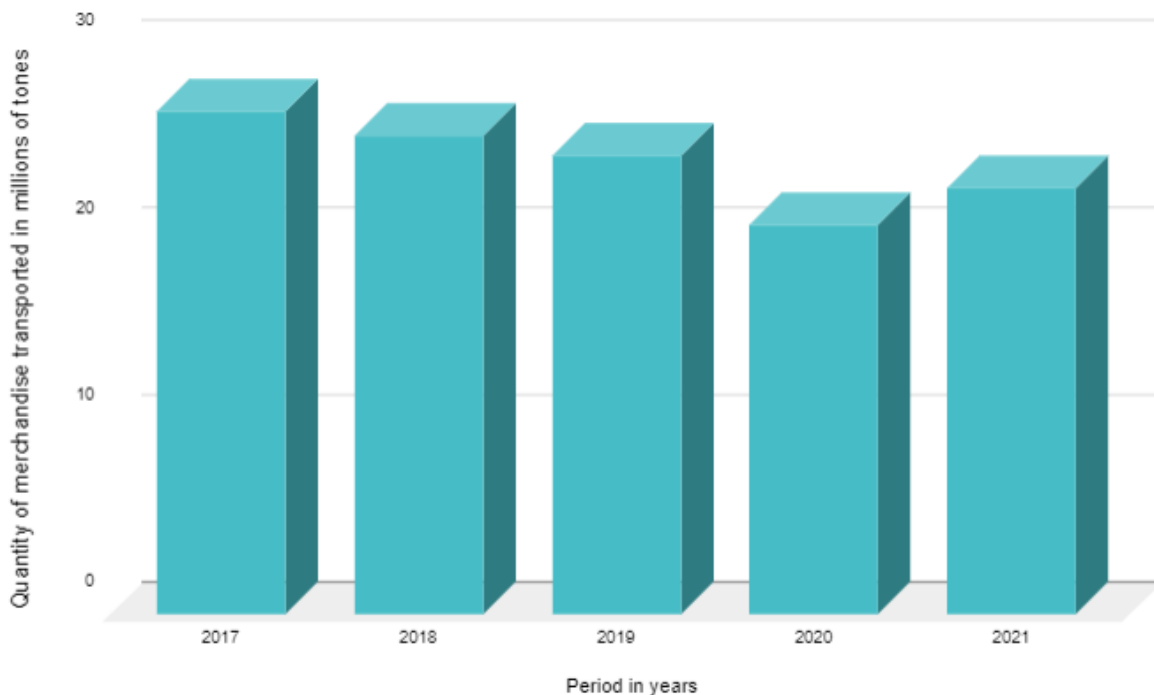
After delimiting the field of work, we will begin to deal with the offer of road transport in Spain, which is of vital importance for our economy.

In the last financial year 2021, the sector rebounded in business volume figures both globally and nationally, after in 2020 the figures decreased by 16% (to 35,000 million euros) in Spain due to mobility limitations caused by the pandemic . This recovery is a growth of around 14.67% compared to the immediate previous year, although an increase in spending in monetary units is expected for this year. This limited profitability is expected due to the

current and growing existence of small transport companies, as well as freelancers who have limited capacities to operate. In addition we can also observe other negative factors such as the increase in fuel prices, which, as a whole, generates profitability losses in the transport business. (Cadena de Suministro. 2021)

If we look from the point of view of demand, the amount of merchandise that has been transported by this type of transport in recent years has not evolved in the same way, as indicated by INE - "Instituto Nacional de Estadística". (2022). Since 2017, in which 26.9 million tons of merchandise were transported, we have observed a sustained decrease as the years go by, as shown in graph 3, in 2020 a more pronounced decrease was noted (standing at 20.8 million tons transported), but in 2021 a more vertiginous growth rebounds, which intended to reach the levels achieved in 2019 (24.5 million tons) before the pandemic, but as we have mentioned, the restrictions within Spain have considerably affected the sector, which meant that in 2021 the amount transported could only rise to 22.8 million tons (as we will see in more depth in section 1.2.2).

**Graphic 3: Evolution of the quantity of goods transported in Spain (2017-2021).**



Source: Own elaboration + INE (2022).

As we have mentioned, it can be seen in *graph 3* that in 2020 the merchandise transported within the national territory decreased drastically, and last year it tried to recover the volume of merchandise transported in 2019.

We will end this section by defining the limits to be studied in the transport sector: The Spanish transport sector can be broken down into various types according to the way it works, these are: Road, rail, sea, air, intermodal, roll-on or ro-ro, fluvial, pipelines and animal or human traction. (Clasificación De. 2019)

However, given the objectives of this project, we will focus on the road transport of goods, which represents point 60.24 of the CNAE (2022), which can also be subdivided into different types, depending on whether the goods to be transported, their volume or routes. For this we will show the different types of classifications in *table 2* (Algevasa Logistics. 2019).

**Table 2: Types of road freight transport**

| SEGÚN LA ESTRUCTURA  | SEGÚN EL TIPO DE CARGA   | SEGÚN LA CAPACIDAD  |
|--|--|---|
| <p>1. RÍGIDOS: Cabina y remolque se encuentran en una misma estructura indivisible.</p> <p>2. ARTICULADOS: Cabina y remolque se unen por una articulación que puede dividirse.</p> | <p>1. CERRADOS: Los laterales se encuentran cerrados y solo se podrá ejecutar la carga y descarga por la parte trasera del camión.</p> <p>2. ABIERTOS: Los laterales también se pueden abrir.</p> <p>3. TAUTLINER: Los laterales se componen por lonas correderas que facilitan cargas y descargas laterales, no son paredes desmontables como los anteriores.</p> <p>4. FRIGORÍFICOS: Aptos para el transporte de alimentos perecederos.</p> <p>5. TANQUES: Para el transporte de líquidos y gases.</p> | <p>1. LIGEROS: Entre 500 kg y 2.5 toneladas.</p> <p>2. LIVIANOS: Entre 2.5 y 3.5 toneladas.</p> <p>3. SEMILIVIANOS: Entre 3.5 y 4.5 toneladas.</p> <p>4. MEDIANOS: Entre 4.5 y 5.5 toneladas.</p> <p>5. SEMIPESADOS: Entre 5,5 y 7,5 toneladas.</p> <p>6. PESADOS: Entre 7.5 y 9 toneladas.</p> <p>7. EXTRA PESADOS: Entre 9 y 11 toneladas.</p> <p>8. ULTRA PESADOS: Entre 20 y 23 toneladas.</p> <p>9. SUPER PESADOS: Entre 40 y 250 toneladas.</p> |

*Source: Algevasa Logistics (2019).*

### 1.2.1.3. Competitors.

In this section we will refer to the types of companies that compete according to their size, since one with respect to the other presents differences and very different competitive strategies, so they do not compete with each other directly.

In Spain we have 65,925 companies dedicated to road freight transport, according to *E/ Economista (2022)*. Table 3 summarizes the number of road freight transport companies in each Spanish province.

**Table 3: Number of Transport companies in Spain by provinces.**

|                                    |       |              |       |
|------------------------------------|-------|--------------|-------|
| A CORUNA                           | 1.870 | JAEN         | 1.335 |
| ALAVA                              | 321   | LA RIOJA     | 643   |
| ALBACETE                           | 1.019 | LAS PALMAS   | 3.678 |
| ALICANTE                           | 2.009 | LEON         | 1.023 |
| ALMERIA                            | 3.584 | LLEIDA       | 980   |
| ASTURIAS                           | 1.238 | LUGO         | 1.258 |
| AVILA                              | 518   | MADRID       | 3.479 |
| BADAJOS                            | 1.752 | MALAGA       | 1.297 |
| BARCELONA                          | 3.254 | MELILLA      | 24    |
| BIZKAIA                            | 807   | MURCIA       | 3.006 |
| BURGOS                             | 779   | NAVARRA      | 978   |
| CACERES                            | 904   | OURENSE      | 770   |
| CADIZ                              | 920   | PALENCIA     | 540   |
| CANTABRIA                          | 791   | PONTEVEDRA   | 1.407 |
| CASTELLON                          | 903   | S.C.TENERIFE | 3.432 |
| CEUTA                              | 19    | SALAMANCA    | 1.012 |
| CIUDAD REAL                        | 1.381 | SEGOVIA      | 521   |
| CORDOBA                            | 1.428 | SEVILLA      | 1.970 |
| CUENCA                             | 838   | SORIA        | 318   |
| GIPUZKOA                           | 588   | TARRAGONA    | 900   |
| GIRONA                             | 1.119 | TERUEL       | 407   |
| GRANADA                            | 1.414 | TOLEDO       | 1.634 |
| GUADALAJARA                        | 397   | VALENCIA     | 2.736 |
| HUELVA                             | 869   | VALLADOLID   | 800   |
| HUESCA                             | 556   | ZAMORA       | 560   |
| I. BALEARS                         | 982   | ZARAGOZA     | 957   |
| TOTAL: 65.925 Transport companies. |       |              |       |

Source: Ministerio de Fomento. (2022).

As can be seen in the table above, Castellón currently has 903 road freight transport companies, with Las Palmas and Almería being the provinces with the most companies of this nature. (Ministerio de Fomento. 2022).

According to a statistical study by *El Economista* (2022), the **small companies** with the highest turnover in Spain are *Jasaro SL*, which ranks 400th in the ranking of road transport companies in Spain, with a turnover of €9,937,002, followed by *Avitrans Urgente SL*, and *Transportes Pacholo SL* from Ourense. These could be said to be the direct national competition of *Transportes CAF Lara*, a company which we will continue analyzing later.

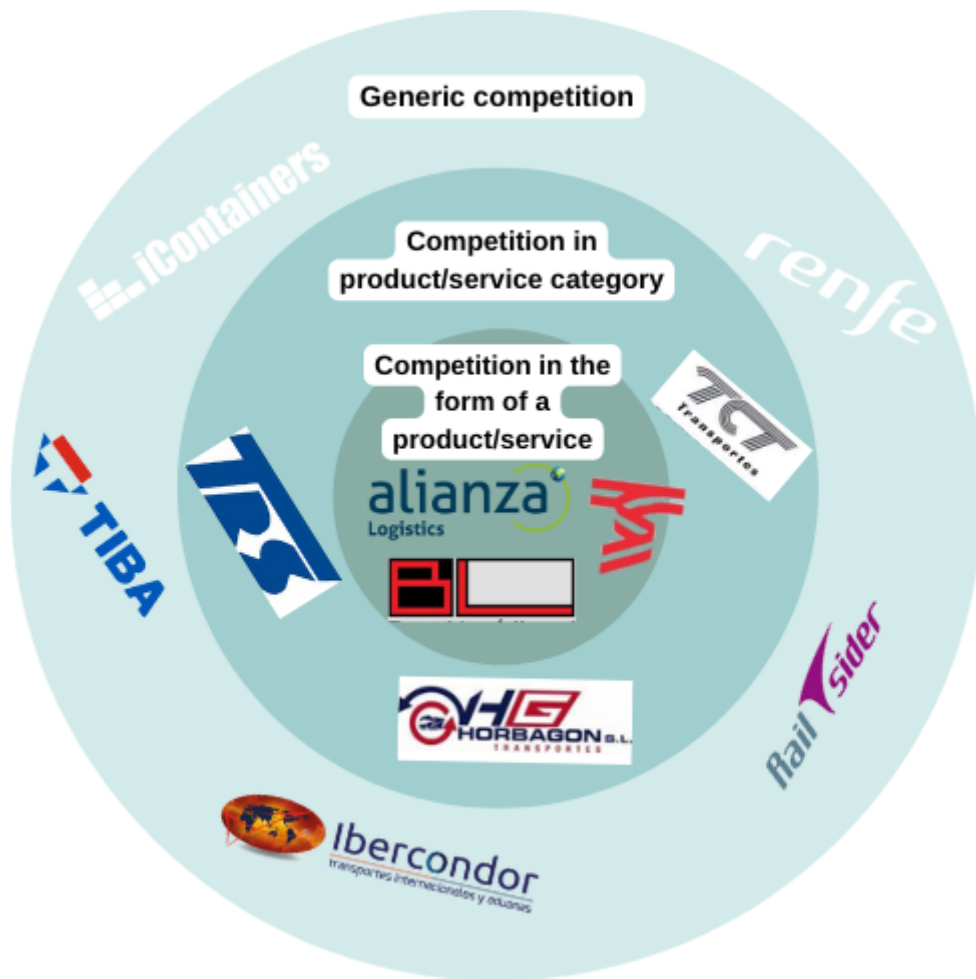
On the other hand, with regard to the province of **Castellón**, we highlight *Transportes Cristián Trufan SL* in position 1875 in the sector, and *Transportes Sidro Beltrán SL* in position 1924. *Transportes CAF Lara* is in the same size category as these according to this ranking within position 3287 of the sector.

Although these would be the most direct competitors of *Transportes CAF Lara* as mentioned above, after conducting an interview with the manager of *CAF Lara* (the company that we are going to analyze in this project) and as we mentioned at the beginning of this section, within the sector transport, and even within road freight transport, the activities are very diverse. For this reason, our primary source told us some data, for example, that in the case of *Transportes Cristián Trufan SL* only travels abroad and *Transportes Sidro Beltrán SL* only transports citrus, so they are not excessively direct competition.

In this way, our primary source provided us with information on who its most direct competitors really were, that is, those that had an economic activity and a turnover more similar to *CAF Lara*, and these were *Trans Salvador Calomarde SL*, *Alianza Logistics SL*, and *Bernat Logistics SL*.

With this information, we can create a map of competence levels that is shown below in *Graphic 4*:

Graphic 4: Competition levels of "Transportes CAF Lara S.L".



Source: Own elaboration (Romeu, 2022; Railsider, 2022; Ibercondor, 2022; RENFE, 2022; IContainers, 2022; Horbagon, 2022; T. S. Beltrán, 2022; T. C. Trufan, 2022; T. S. Calomarde, 2022; Bernat Logística, 2022; Alianza Logistics, 2022)

In the outer circle of *graph 4*, we appreciate **generic competition**, which is made up of those companies that offer a product or service that satisfies the same need for the user (that of transporting merchandise in this case), or in other words, they are substitute products. that we find in the industry. In this case we have selected various air freight transport companies (*Ibercondor*), rail companies (*Railsider* and *Renfe*), and sea companies (*Tiba* and *IContainers*), which are other technologies to satisfy the same need.

At the second level, we have **competition in the product category**, which are those products with similar characteristics, but with the presence of their attributes at different levels. In this graph we can see *Transportes Cristián Trufan SL* and *Transportes Sidro Beltrán SL*, which, as we have mentioned, are road freight transport companies, but they do not transport the same type of merchandise, as well as *Horbagon SL*, which is a bulk

merchandise carrier. With this we can say that their activity objective is not exactly the same, so we include them in the classification as competition in product category.

Finally, in the central circle we have **competition in the form of a product**, which is the most direct competition. In this we highlight *Trans Salvador Calomarde SL*, *Alianza Logistics SL* and *Bernat Logística SL*, which are companies that have a very similar way of doing business, and transport a wider variety of products, in the same way that *Transportes CAF Lara* works, as well how they act in a similar geographical area.

#### 1.2.1.4. Customers and segmentation

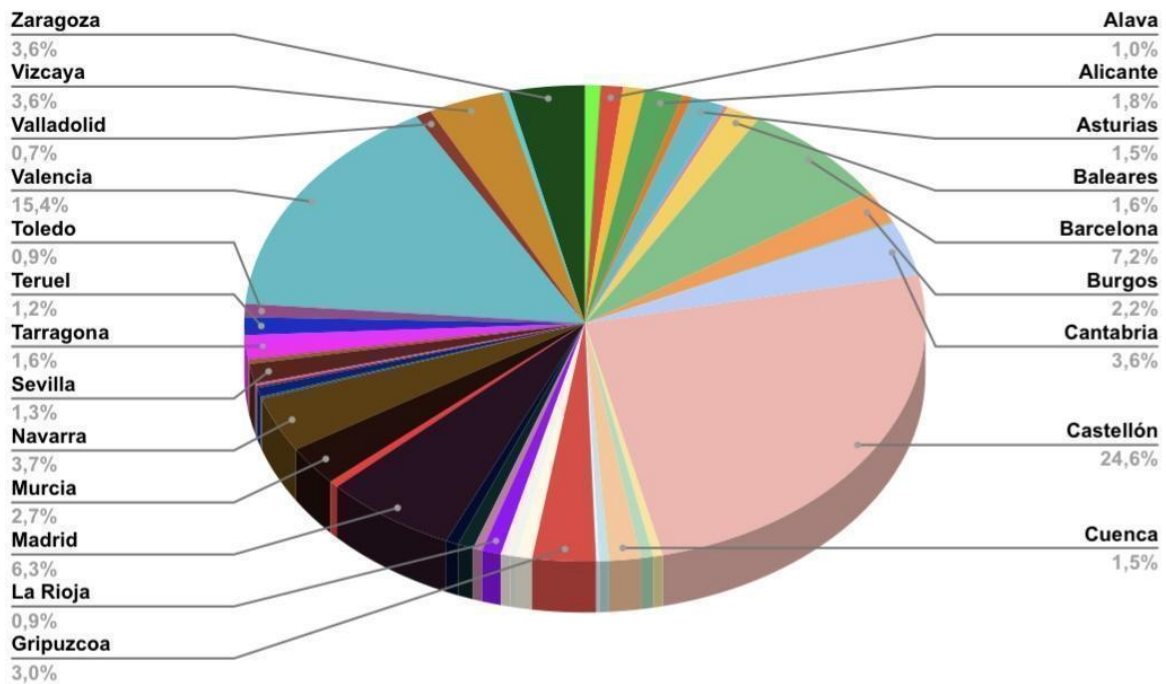
In this section we are going to analyze the different types of customer segmentation in the transport of goods, as well as an identification of the customers that the company *Transportes CAF Lara* targets.

Before starting with the segmentation, it is necessary to define the scope of the company geographically. *Transportes CAF Lara* generally moves within the autonomous territory, although we can also highlight other regions that it frequents, such as the northern part of the peninsula, some areas of Aragon, Navarra, Murcia, Catalonia and the Balearic Islands. Another important piece of information is that the company has a total of 689 clients registered in its system, of which 15 clients are served daily and the rest are occasional. We will call daily customers "Loyalty customers" since they have advantages when included in their loyalty plan such as better prices or better assistance. We will call the other clients "Temporary Clients".

Next, in *graph 5*, we are going to show a national representation of the distribution of the company's clients, as well as their intensity in each zone.



**Graphic 5: Distribution of *Transportes CAF Lara* 's clients.**



Source: Own elaboration with primary information

As can be seen in the graph above, Castellón represents the majority of its client portfolio with 24.6% of its market share, followed by Valencia with 15.4% and Barcelona with 7.2%.

Next, we will proceed to enter into the matter of the company's market segmentation.

In the freight transport sector, we can see an infinite number of possibilities for segmenting customers. This segmentation will be subject to different division criteria, depending on the type of customer, the type of merchandise, or the place/distance to which it is transported.

Firstly, the classification will be affected depending on whether the consumer is an end customer (particular), a company or a public administration, that is, **depending on the type of customer**. In the case of *Transportes CAF Lara*, it is mainly dedicated to the B2B business, as reflected throughout this point in *Table 3*.

The next classification to attend to is according to the type of merchandise transported. These goods can be of a diverse nature, among which we can highlight: Construction materials (metallurgy or construction), machinery, automotive (vehicle parts), press (paper sector), advertising (roll-ups, displays, posters, banners ...), electronic devices, textiles, finished products, food, chemicals or cosmetics. (ECEIZA. 2019)

According to *Felipe (2019)*, the most transported goods in Spain are products destined for retail trade (representing 37.2% of the total), as well as food products, which amount to 35.8% of the total goods transported in Spain. With smaller but still significant shares we find electronic products (10.5%), beverages within food (8.8%) or health products (1.5%).

Lastly, customer segmentation is affected depending on whether the transport is to be carried out within the regional borders (in this case the Valencian Community), within the country (Spain) or also outside it, that is, internationally.

*Table 4* below summarizes all the types of segments that we have mentioned and identifies those modalities that are served by *Transportes CAF Lara*.

**Table 4: Segmentation of Clients in the transportation sector and identification of the segments to which *Transportes CAF Lara* addresses.**

|                                  |          |           |            |                   |                       |             |
|----------------------------------|----------|-----------|------------|-------------------|-----------------------|-------------|
| SEGÚN EL TIPO DE CLIENTE         | Private  |           | Business   |                   | Public Administration |             |
|                                  |          |           | X          |                   |                       |             |
| SEGÚN LA MERCANCÍA TRANSPORTADA  | Building | Machinery | Automotive | Press             | Advertising           | Electronics |
|                                  | X        | X         | X          |                   |                       | X           |
|                                  | Textile  | Feeding   | Chemicals  | Finished products | Cosmetics             |             |
|                                  |          | X         | X          | X                 | X                     |             |
| SEGÚN LA LOCALIZACIÓN            | Regional |           | National   | Insular           | International         |             |
|                                  | X        |           | X          | X                 |                       |             |
| SEGÚN LA RELACIÓN CON EL CLIENTE | Loyalty  |           |            | Temporary         |                       |             |
|                                  | X        |           |            | X                 |                       |             |

Source: Own elaboration with primary information

**\*The Table shows the segments covered by *Transportes CAF Lara* marked with an "X".**

To continue, we are going to create a classification of the types of products transported to facilitate the segmentation analysis. On the one hand, we will have **type A products** that will be those derived from mechanics such as: Machinery, Automotive and Electronics. **Type B**

**products** will be those ready to consume such as Finished Products, Cosmetics and Food and as **type C products** we will classify raw materials such as chemicals or construction material.

With this information we can specify that the target audience of *Transportes CAF Lara* in each of the classifications is:

**1. According to permanence:**

- Loyal customers
- occasional customers

**2. Depending on the type of merchandise transported:**

- Customers who require type A products
- Customers who require type B products
- Customers Requiring type C Products

**3. According to the route:**

- regional customers
- Peninsular customers
- Insular customers

Through the information provided by the manager of Transportes CAF Lara SL, we have been able to attribute to each customer segment a value referring to its importance from 1 to 5, where 1 is a segment of little relevance to the company and 5 is a very important segment.

In summary, with this information, we can make the following segments, which from now on will be mentioned by the names suggested in *table 5*

**Table 5: Segmentation of Transportes CAF Lara.**

| Segment               | Segmentation factors used  | Description   | Level of importance of the segment for the company Transportes CAF Lara S.L. |
|-----------------------|--|---|--|
| Loyals A              | <ul style="list-style-type: none"> <li>- Loyal customer</li> <li>- Type A product</li> <li>- Regional Customers</li> </ul>   | They are geographically accessible customers who have been working with the company for many years and who need a type A product. | 3  |
| Loyals B              | <ul style="list-style-type: none"> <li>- Loyal customer</li> <li>- Type B product</li> <li>- Regional Customers</li> </ul>   | They are geographically accessible customers who have been working with the company for many years and who need a type B product. | 4  |
| Loyals C              | <ul style="list-style-type: none"> <li>- Loyal customer</li> <li>- Type C product</li> <li>- Regional Customers</li> </ul>   | They are geographically accessible customers who have been working with the company for many years and who need a type C product. | 5  |
| Occasional Nearby A   | <ul style="list-style-type: none"> <li>- Occasional customers</li> <li>- Type A product</li> <li>- Regional</li> </ul>       | Customers in the regional area who contract services occasionally and need a type A product.                                      | 1  |
| Occasional Nearby B   | <ul style="list-style-type: none"> <li>- Occasional customers</li> <li>- Type B product</li> <li>- Regional</li> </ul>       | Customers in the regional area who contract services occasionally and need a type B product.                                      | 2  |
| Occasional Nearby C   | <ul style="list-style-type: none"> <li>- Occasional customers</li> <li>- Type C product</li> <li>- Regional</li> </ul>       | Customers in the regional area who contract services occasionally and need a type C product.                                      | 4  |
| Occasional National A | <ul style="list-style-type: none"> <li>- Occasional customers</li> <li>- Type A product</li> <li>- National scope</li> </ul> | Customers from all over Spain who contract services occasionally and need a type A product.                                       | 1  |
| Occasional National B | <ul style="list-style-type: none"> <li>- Occasional customers</li> <li>- Type B product</li> <li>- National scope</li> </ul> | Customers from all over Spain who contract services occasionally and need a type B product.                                       | 3  |
| Occasional National C | <ul style="list-style-type: none"> <li>- Occasional customers</li> </ul>   | Customers from all over Spain who contract  | 4  |

|           |   |  |   |
|-----------|---|--|---|
|           | <ul style="list-style-type: none"> <li>- Type C product</li> <li>- National scope</li> </ul>  | services occasionally and need a type C product.                                 |   |
| Insular B | <ul style="list-style-type: none"> <li>- Occasional customers</li> <li>- Type B product</li> <li>- Of the Balearic Islands</li> </ul> | Balearic customers who contract services occasionally and need a type B product. | 3 |
| Insular C | <ul style="list-style-type: none"> <li>- Occasional customers</li> <li>- Type C product</li> <li>- Of the Balearic Islands</li> </ul> | Balearic customers who contract services occasionally and need a type C product. | 4 |

*Source: Own elaboration with primary information*

Regarding the last column, we will analyze the customer segments rated with the highest score in the last section of this project, where we will design improvement plans for the company Transportes CAF Lara S.L. that are addressed to them. We will also carry out discriminatory actions against temporary clients as opposed to frequent ones.

## **1.2.2. Macro-environment**

At this point we will talk about the political, legal, economic, technological, sociocultural and environmental environment. It should be noted that in the technological environment there will be a brushstroke of what will be dealt with more intensely in later points, since it is the main object of this project. In the same way, we will give more or less importance to each factor according to its relevance in this context.

### **1.2.2.1. Political Environment**

In general, some decades ago, common regulations were established in the European territory to facilitate the activity of transport in this territory, specifically the action began in 1985 when the Court of Justice of the European Union forced to really start up a common transport policy, but a real action was in December 1992 when the Commission adopted the "Libro Blanco" which consisted of the opening of the markets and the development of a trans-European network, a security system and a turning point in the integration of the intermodal transport based as much as possible on sustainable mobility. A few years later, in 1998, this book was updated by introducing "Tarifas Justas" for the use of infrastructures,

which highlighted the great differences between European states when it came to transport, which affected their competition.

Later, in 2001, an extension of this “Libro Blanco” was written, where they were proactive for 2010 and anticipated the problems and demands that it would entail at that time. An increase in the volume of transport was predicted, announcing future traffic jams and environmental problems: for this, a package of 60 measures was presented that contributed to an efficient use of the inter-European network.

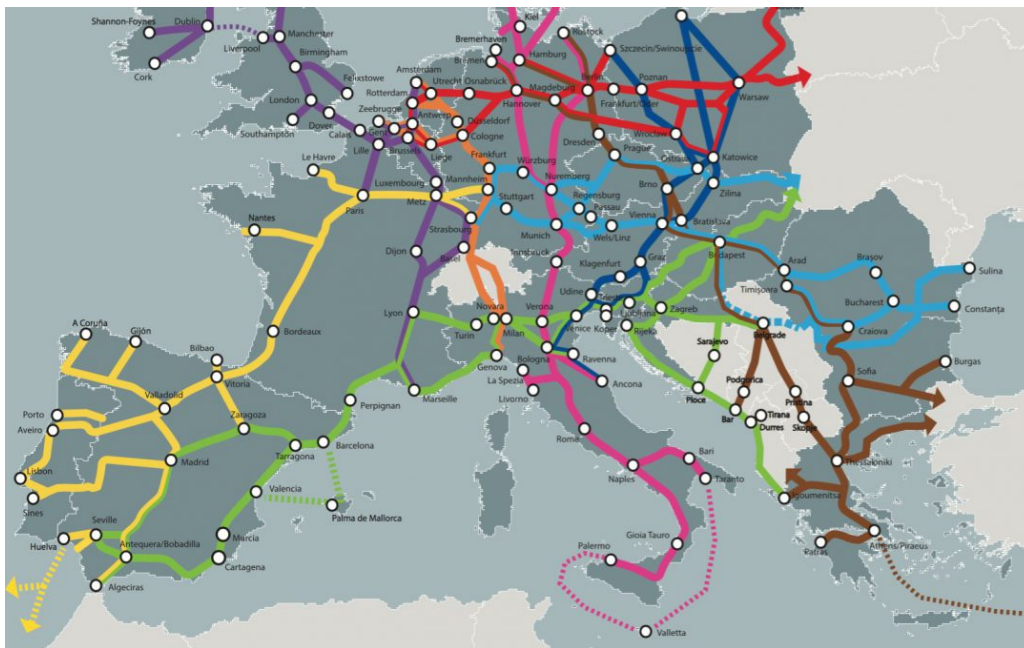
The same was done in 2011 on the future of 2050 where he wrote a "Libro Blanco" named “Hoja de ruta hacia un espacio único europeo de Transporte” that was based on the sustainability and competitiveness of the member states, on eliminating all residual transport barriers and in pursuing the pure harmonization of the system.

Later in 2016, the commission established a strategy in favor of mobility that gave off the least possible emissions. This was followed in 2020 by a smart and sustainable mobility strategy, and in 2021 by legislative proposals in favor of alternative fuels and to the detriment of CO2 emissions. (Parlamento Europeo, 2021).

In summary about the current situation of the European transport policy we can say that 2 issues stand out:

The first is the “Libro Blanco” that we have been talking about during this section and we have seen that it is receiving continuous updates in its content. The second is the trans-European networks (which we can see in *image 6*) which are also of great importance in this sector and which are the main recipients of community funding since their objective is to build the necessary connections to facilitate transport, optimize infrastructure and contribute to the elimination of bottlenecks as well as sustainable development.

**Image 6: Trans-european transport network.**



Source: Ministerio de Transportes (2022)

Derived from the second element, we find the *Van Miert* group report, which is based on studying the priority connections planned for the coming years. After this we have the new proposals for the development of the TEN-T that also seeks to improve connections but based more on the European horizon.

Other priority issues of the European transport policy refer to other types of transport, so they are outside the scope of this project.

(Ministerio de Fomento. 2021).

## RESUME

In the so-called "Libro Blanco" all the legal measures for its application in transport have been updated.

Creation of a sustainable and intelligent mobility strategy.

The approved trans-European networks have achieved an optimal level of fluidity

### 1.2.2.2. Legal Environment

In general legislative matters, we can say that according to article 36 of "Law 9/2013", of July 4, on the *Ordenación de los Transportes Terrestres* (BOE, 2022), the Superior Body in charge of transport advice is the "Consejo Nacional de Transportes Terrestres" that will be integrated by experts designated by the general administration of the State. However, it is worth mentioning legislative issues in some specific areas in which the performance of transport is more significant, such as, for example, in environmental issues or tax issues.

In reference to the laws of an environmental nature, we find a great diversity of actions, among them we can highlight the following as some of the most relevant (*MITECO Gobierno De España. 2022*):

- "Regulation (CE), No. 510/2011" (European Parliament and Council of the EU. 2009): This indicates the rules on how companies must act in relation to emissions from light commercial vehicles.
- "Directive 2009/28/CE of the European Parliament and of the Council, of April 23, 2009" (BOE, 2009) that refers to the motivation to make use of renewable energies.
- "Royal Decree 1078/2015, of November 27" (BOE, 2015): Promote aid to acquire vehicles that work with sustainable energies and to implement more electric charging points for road vehicles at strategic points.
- "Law 2/2011, of March 4" (BOE. 2011): It refers to the sustainable economy.

On the other hand, we can also highlight legislation regarding tax elements, and the fact of being a freight carrier implies being up to date with the payment of a large number of taxes. These taxes include general taxation and specific taxation (On companies or individuals, on vehicles, on authorizations and on the activity). Ministry of Transport (2022).

*Table 6* summarizes the main taxes paid by a transport company or self-employed person.

**Table 6: Transport taxes in Spain (2022)**

|                          |  |
|--------------------------|--|
| <b>General Taxation</b>  | <ul style="list-style-type: none"><li>- Value Added Tax (VAT)</li><li>- Personal Income Tax (IRPF)</li><li>- Corporation Tax for Companies of the Mercantile type</li><li>- Wealth Tax</li><li>- Real Estate Tax (IBI)</li><li>- Social Security</li></ul> |
| <b>Specific Taxation</b> | <ul style="list-style-type: none"><li>● <b>About companies or individuals:</b></li><li>- Tax on economic activities (IAE)</li><li>- Company visa</li></ul>   |



|  |   |
|--|---|
|  | <ul style="list-style-type: none"> <li>● <b>About vehicles and authorizations:</b> <ul style="list-style-type: none"> <li>- Granting and visa of the transport authorization</li> <li>- Tax on motor vehicles</li> <li>- Insurance</li> <li>- ITV</li> <li>- Tachograph review</li> </ul> </li> <br/> <li>● <b>About the activity:</b> <ul style="list-style-type: none"> <li>- Special tax on hydrocarbons</li> <li>- Tolls</li> <li>- Others</li> </ul> </li> </ul> |
|--|---|

Source: *Ministerio De Transporte (2022)*

To stand out among these taxes that are exposed in the table above, we find the tax burden that Social Security entails. This figure amounts to between 15.9% and 21% of company revenues. In general, the companies that assume the least burden of this type of assumption are the self-employed who only have one vehicle, as well as cooperatives. However, Spain is one of the EU countries that makes the least contribution to this tax, since it is below the European average.

Another tax that worries many is personal income tax (IRPF) for individuals and corporate tax for companies. In the case of personal income tax, this represents 2.1% for those individuals who have 10 vehicles for transport and 2.8% for those who have five vehicles. In the case of corporate tax, the amount represents 4.7% for SMEs and 1.9% for large companies.

**RESUME:**

The Superior Body in charge of advising on transport is the “Consejo Nacional de Transportes Terrestres”..

Various regulations and directives have marked considerable changes in the relationship between transport and the environment, for example:

- “Regulation (EC), No. 510/2011”
- "Directive 2009/28/CE of the European Parliament and of the Council, of April 23, 2009" (BOE, 2009)
- "Royal Decree 1078/2015, of November 27" (BOE, 2015):
- “Law 2/2011,

Pressure from tax elements such as SS and corporate tax.

### 1.2.2.3. Economic Environment

Currently the Spanish economy in general has been subjected to a major crisis caused by Covid19. According to a report carried out by *Mazars (2022)*, the impact of the pandemic in Spain has been rather uneven in terms of the effect on companies, considering that not all companies have suffered the same damage and transport companies being one of the least affected. *Martínez (2022)* is of the same point of view, considering that logistics and transport managed to impeccably cope with the crazy rise in demand, especially food transport for supermarkets in the first weeks of the pandemic. However, the transport of other types of merchandise has been somewhat more affected according to this author, such as the transport of automotive parts, which has been due in large part to the impossibility of making some international supplies during certain periods. of the pandemic. Due to this type of inconvenience, the establishment of shorter supply chains than usual was launched, and moving all possible business to a virtual modality.

As we can see, we can say that in the face of adverse circumstances, we have been able to adapt quite well and move forward, trying to keep the Spanish economy as normal as possible in terms of transport.

On the other hand, it is also worth mentioning some economic data and figures, as well as talking about the road network as a tool to boost the Spanish economy from the point of view of road transport.

A good transport network undoubtedly has a weight in the economic growth of a country. In recent years, Europe and with it Spain have prospered in terms of globalization, increasing the number of commercial transactions both within Spain and through Europe and third countries. In this sense, with regard to our country, we have observed a great evolution in the road network that has made it possible to remove the barriers that Spain used to have, due to the peculiar shape of our network. In Spain for years we have found discrepancy between transport policy and the objectives of the European Union, since road transport infrastructures have a radial form and are centrally managed and in this system intermodality is not taken into account when to plan the transport network paying special attention to passenger traffic to the detriment of freight transport. (Fegat. 2022).

Historically, the road network, as we have mentioned, was created in a radial way that led to Madrid, both because it was a geographical point where everyone could access it equally, and because it was the Spanish capital. These so-called "national highways" have been replaced over the years by highways and motorways that gradually form what we know as the "Red de Carreteras del estado (RCE)" by the DGT, as shown in *image 7*. (Prieto, 2018)

**Image 7: Network of Spanish highways and highways.**



Source: Wikipedia (2022)

This road network has allowed Spain to become a more globalized power, as well as facilitating transport within the country, which also helps the growth of Spanish road transport SMEs.

Lastly, we will see in *Table 7* how freight transport journeys by road have evolved (including both loads and empty), which will also allow us to get an idea of how economic activity has been changing in the sector over the years until see the pandemic effect reflected.

**Table 7: Evolution of the interannual variation rate of Transport operations with load and empty according to type of displacement.**

| Period | TOTAL | INTRA-MUNICIPAL | INTRA-REGIONAL | INTERREGIONAL |
|--------|-------|-----------------|----------------|---------------|
| 2015   | 5,7   | 0,1             | 6,9            | 9,1           |
| 2016   | 2,1   | -1,0            | 2,6            | 4,3           |
| 2017   | 8,1   | 10,4            | 7,2            | 8,2           |
| 2018   | 4,6   | 3,5             | 5,7            | 1,8           |
| 2019   | 4,3   | 1,7             | 5,3            | 3,7           |
| 2020   | -5,4  | -5,0            | -6,5           | -1,7          |

Source: INE (2021) + Own Elaboration

As can be seen in the previous table, intra-regional transport was the one that decreased the most in the pandemic, which will cause it to be at lower levels than two years earlier. On the other hand, interregional transport hardly decreased, and this is what allows the sector not to suffer large losses, since this is the one that offers the greatest contribution to the economic growth of the sector. *INE (2021)*.

Finally, to close the analysis of the economic environment of transport, special emphasis should be placed on the current situation of this as a consequence of the uncertainty derived from the Russian invasion of Ukraine, but specifically due to the **rise in fuel prices** that derives from this event. . Fuel prices are skyrocketing, and freight carriers consider that the prices they charge for freight do not cover the current expenses they are assuming, which event leads to the calling of numerous strikes in the country as a sign of protest. Despite this, the International Transport Committee, which is the current interlocutor with the government, does not join the protests of the Spanish carriers, although it does accuse the oil companies of the problem, considering them the most expensive in the EU, and attributes to the government the responsibility of executing response plans to this crisis, which are already underway today (Fresneda, 2022).

**RESUME:**

Some adverse environmental situations, such as the pandemic, have led to shorter supply chains and even the transfer of some activities to a virtual mode.

There is a discrepancy between transport policy and the objectives of the European Union. Intermodality is not taken into account.

Rise in fuel prices, with non-compensatory state aid. Lack of fuel availability.

#### 1.2.2.4. Socio-cultural Environment

The main factor to talk about in this section, which is of vital importance today, is the labor sector in Spain, but above all in transport.

If we delve deeper into the subject, we realize the seriousness of the situation in which the province of Castellón finds itself in this aspect, as indicated by authors such as Ribés (2021). The “Asociación Empresarial de Transporte de Mercancías por Carretera de Castellón (ACTM)” has been applying measures such as increasing the training offer to supply professionals in the transport and logistics sector for some time, since there is a great lack of personnel. The ACTM is wanting to highlight its concern about the lack of professionals in the sector who indicate that although economic activity is recovering in this sector, it will still remain below pre-pandemic figures. (San Miguel. 2021).

It is estimated that there is currently a deficit of 15,000 drivers nationwide and that the transport sector is made up mostly of elderly people, of whom early retirement is expected and therefore the sector would be even more short of professionals. To this information it should be added that Spain is the first country in the Eurozone of the European Union with the highest rates of youth unemployment, rising to 39.9% in those under 25 years of age. (Ribés, 2021)

Among the main problems that have led to this, 2 are identified: One is due to the lack of education in the sector for which the ACTM has promulgated various courses to train professionals in transport and logistics. Secondly, the low prestige of the transport sector is perceived by society, so emphasis must be placed on demonstrating the importance that this sector has for the Spanish economy and that it is somehow more attractive to young people. (San Miguel, 2021).

As for the reason mentioned, which refers to the lack of training in transportation, it also affects the fact that during the pandemic these courses were not established, which they intend to do from now on, according to the Lara San Miguel secretary. During confinement, according to a study carried out by the University of Navarra, online training during confinement grew by 900%. This convenience surely caused many young people to get educated, having more free time. As the transport sector did not have educational courses prepared to specialize in this matter, this negatively affected them. (Redacción Entre Estudiantes , 2021).

In addition to other information on what is shown in *Table 8* referring to those employed in the Transport sector before the pandemic, we can see how before the COVID appeared in our lives, the occupation in the road freight transport sector grew from a considerable manner, but as we have just mentioned in this section, from this point onwards the employment rate is declining, which is why the lack of action by the Ministry of Transport with regard to employment in the sector is evident. (Ministerio De Transporte, 2019).

**Table 8: Growth in employment in the land and pipeline transportation sector in Spain (2018-2019).**

|   | 2018          | 2019            | 2018/2019    | 2019/2008    |
|---|---------------|-----------------|--------------|--------------|
| <b>Land and pipeline transportation</b>   | <b>589,40</b> | <b>218,40</b>   | <b>+4,9%</b> | <b>+0,8%</b> |
| <b>Total Transport and Storage Sector</b> | <b>981,10</b> | <b>1.031,10</b> | <b>+5,1%</b> | <b>+6,1%</b> |

Source: Ministerio De Transporte (2019)

#### RESUME:

The transport work sector is in decline. The highest rates of youth unemployment come from this sector.

Training intentions are being carried out to improve the attraction of these jobs, but the adverse conditions of the environment are going to negatively affect labor demand in transport.

#### 1.2.2.5. Technological Environment

Today we see how companies adopt more and more technology regardless of the sector in which they are dedicated and the function within the company that we are talking about. In short, we can see how technology in the transport sector is becoming a more fundamental element.

Nowadays there are many advantages that a good use of technology brings in the transport sector and in logistics in general. Some of these advantages are the registration of the route of a vehicle that allows it to be detected in the event of an accident or theft. Another contribution of technology has also been widely used, which is the optimization of routes or the possibility of controlling the truck itself and the location of the merchandise it carried through the same system. With all this, it is also possible to increase safety for the driver, without forgetting strategic reasons such as the possibility of

analyzing all the information on routes, expenses, etc. in a simpler way. to then be able to draw conclusions and make decisions. (Novologica, 2019)

Although there are many effects of new technologies in the transport and logistics sector, this will be seen in greater depth in section 2: "Study of new technologies applied to Logistics".

RESUME:

Technology in the transport sector is becoming more and more fundamental.

Significant improvements in aspects such as vehicle and merchandise tracking, route optimization, security, etc. thanks to the development of BI and artificial intelligence.

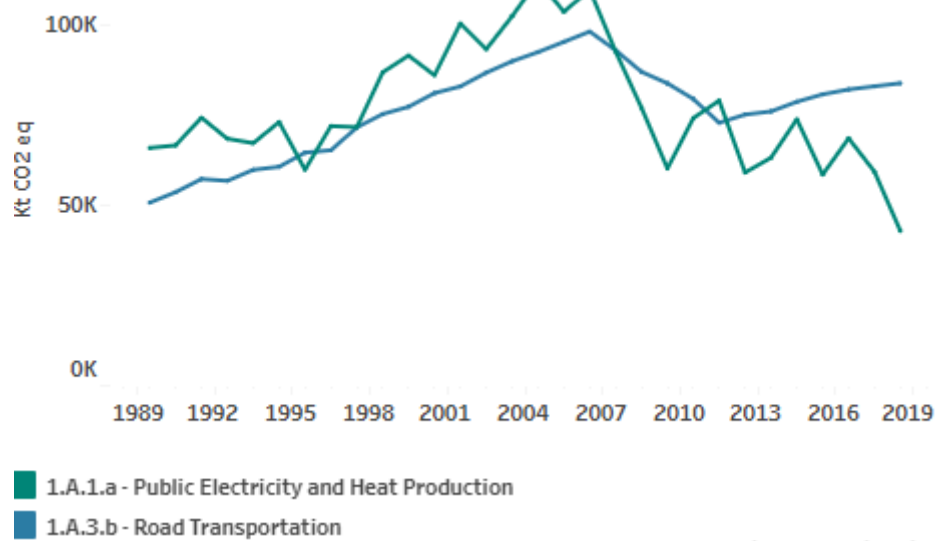
#### 1.2.2.6. Environmental setting

In the effect of the transport sector on the environment, greenhouse gas emissions stand out, with CO2 being more important and road transport being the main responsible for this, which is why we have to pay more attention as road freight transporters. . In addition to this, we can say that the most polluting fuel is petroleum-derived fuel and that it has an important weight since it represents more than 90% of the fuel consumed by the transport sector in the country.

In addition, *El Ministerio para la Transición Ecológica y el reto demográfico del gobierno de España (MITECO)* indicated that the transport sector represents 25% of the causes of the greenhouse effect, with the road being almost 95% of these emissions of which we speak, for what are worrying data. (MITECO Gobierno De España, 2022).

Next, in *graph 6*, prepared with information from the European Environment Agency (2020), we will observe the evolution of the electricity and public heat network, as well as that of road transport and the contribution of both to CO2 emissions in Spain.

**Graphic 6: Evolution of CO2 emissions in Spain by road transportation and the public supply of heat and electricity.**



Source: EEA Europa. (2020)

With respect to *graph 6*, we can observe, taking 2012 as a reference, that while the public supply has reduced its CO2 emissions from 78,700 cat-e to 42,597 cat-e, the transport sector has increased since 2012 from 72,555 to 83,514 cat-e. which shows that the transport sector could invest in improving this aspect. (EEA, 2020)

However, it should be noted that actions are being taken to reduce such emissions in the greenhouse effect, such as, for example, the "Spanish Sustainable Mobility Strategy", which are measures to help make mobility in Spain less polluting or the "Strategic infrastructure and transport plan" that promotes the railway mode.

In addition, we also find some laws that could be related to the legal field, but within the environment, which are based on tax deductions, on the obligation to approve a *sustainable urban mobility plan* or the promotion of alternative technologies for transport and biofuels. There are also some plans such as the "*Electric Mobility Pilot Project*" (MOVELE) or the "*Plan to Promote Mobility with Alternative Energy Vehicles*" (MOVEA), which are based on aid to buy electric vehicles.

Finally, regulations were established to reduce emissions both in private vehicles and in company vehicles. We also find some plans such as the "*Incentive Plan for Efficient Vehicles*" (PIVE) or the "*Plan to Promote the Environment*" (PIMA), which are based on the



renewal of vehicles that are too old and therefore more polluting. (MITECO Gobierno De España. 2022).

**RESUME:**

The transport sector increased its CO2 emissions since 2012 from 72,555 to 83,514 cat-e. In addition, there are various environmental improvement projects such as:

- Spanish sustainable mobility strategy
- “Strategic infrastructure and transport plan”
- MOVE
- MOVE
- PIVE
- PIMA

**1.3. SWOT**

Finally in this section, we summarize the information with a diagnosis of the company's position through a SWOT, where strengths, weaknesses, threats and opportunities will be revealed.

**Table 9: SWOT**

| S                                       | W                                 | O   | T   |
|---|-----------------------------------|---|---|
| STRENGTHS                               | WEAKNESSES                        | OPPORTUNITIES   | THREATS   |
| Constant and controlled human workforce | Outdated management software      | Decrease in costs thanks to the development of Business Intelligence.                   | Little demand for work  |
| Commitment to service                   | small business size               | Incorporation of new technologies thanks to the development of artificial intelligence. | Infrastructure saturation, intermodality is not considered                  |
| Impeccable customer service             | Underdeveloped brand concept      | Exploitation of new routes  | Entry of innovative logistics alternatives                                  |
| Speed in island transport               | Medium-low investment capacity    | More optimized freight transport thanks to the optimal road network.                    | The transport sector represents 25% of the causes of the greenhouse effect. |
| Good size of facilities                 | High dependence on the human team | Opening of the markets  | Higher oil prices and lack of availability of it.                           |
| Competitive prices                      |                                   | Environmental aid plans (MOVELE and MOVEA)  |   |

Source: Own elaboration

## 2. STUDY OF NEW TECHNOLOGIES APPLIED TO LOGISTICS

Next, all the technologies that have been appearing in recent years will be summarized in a table, mentioning those that have an interesting application in transport or in some part of the logistics chain.

**Table 10: New technologies in transport.**

| TECHNOLOGY                                 | CONTRIBUTIONS  | POSITIVE/ NEGATIVE FACTORS  | EXAMPLE OF APPLICATION IN LOGISTICS  |
|--|--|---|--|
| 1. ROBOTICS<br>(Roland Berger, 2021)       | Intelligent robots and machines that make it easy for tasks to be carried out automatically. The tasks can be from organizational tasks to searches within a warehouse and deliveries. | <ul style="list-style-type: none"> <li>(-) You have to learn about this discipline</li> <li>(-) Implies the acquisition of new technologies</li> <li>(-) Effort to modify business regulations by assuming this is a totally different way of working.</li> <li>(+) Management of more technically complex information</li> <li>(+) Information control automatically through algorithms and artificial intelligence.</li> <li>(+) The robot provides more ROI in the medium term than a human operator.</li> <li>(+) Reduction of logistics costs ranging between 20 and 40% reduction</li> <li>(+) Increase in productivity between 25 and 70%</li> <li>(+) Allow customization and remote connection.</li> </ul> | Robots that carry out storage, picking, packing, loading and unloading functions (as a transport aid) or even reach a completely autonomous distribution, as with delivery robots. |
| 2. AUTOMATED WAREHOUSES<br>(Mecalux, 2021) | These logistics facilities work through stacker cranes, conveyors and/or monorails.  | <ul style="list-style-type: none"> <li>(+) Cost reduction and streamlining of operations to automate processes</li> <li>(+) More competitive logistics platforms.</li> <li>(+) The staff can focus on not so routine tasks leaving this to the machines.</li> <li>(+) Decrease in maintenance costs as this handling is automatic and reduces equipment wear.</li> <li>(+) Increased safety, both personal and merchandise, since these teams are prepared on purpose to reduce the human presence resources and the automation of the loading of goods makes these reduce their loss these reduce their losses.</li> </ul>   | Automatic pallet stacker cranes or for the preparation of automatic orders by reference number.  |

|  |   |  |   |
|--|---|--|---|
| <p>3. RFID<br/>(Visual Trans, 2021).</p>                               | <p>This technology allows an instant reading of any device enabled for it. Several codes can be read at the same time, recognize the reference of a product individually, read from a distance and even when they are damaged.</p>                  | <p>(+) Detects a specific SK.<br/>(+) Allows you to scan multiple codes at once.<br/>(+) Eliminate errors.<br/>(+) Facilitates the estimation of expenses.<br/>(+) Increases the possibility of planning movements.</p>  | <p>When a truck enters an unloading area, the company can receive information about which units have entered that area.</p>   |
| <p>4. WEARABLES<br/>(Visual Trans, 2021).</p>                          | <p>They are based on garments that can be worn and that are equipped with smart technology.</p>   | <p>(+) They facilitate the collection of data on worker productivity.<br/>(+) They make the worker's work more comfortable.<br/>(-) High cost.</p>   | <p>A body computer allows an operative to consult the steps that have to be carried out in the warehouse, a ring allows barcodes or QR's to be read.</p>  |
| <p>5. SIT (INTELLIGENT TRANSPORTATION SYSTEMS)<br/>(Mecalux, 2021)</p> | <p>They are based on driver assistance to make your work experience easier.</p>   | <p>(+) Increases safety at work<br/>(+) Optimize travel times<br/>(-) The vehicle in question will need to be able to exchange information with other vehicles and with transport infrastructure.</p>  | <p>- Payment of tolls automatically<br/>- Anticipation of emergencies and accidents on the road,<br/>- Real-time route planning.</p>  |
| <p>6. BIG DATA<br/>(Mecalux, 2021)</p>                                 | <p>It offers us a way to capture a large amount of data that we can then use to make decisions.</p>   | <p>(+) Help in decision making<br/>(+) It allows knowing a lot of information and structuring it<br/>(+) Personalization<br/>(-) Sensitive data protection<br/>(-) Constant evolution of technology<br/>(-) We do not know the veracity of the data<br/>(-) Excess data.</p>   | <p>- The flows of the materials can be studied and thus study if there is a better combination that optimizes the processes.<br/>- Study the routes that have been made and propose optimizations of these for the following trips.</p> |
| <p>7. EDI<br/>(Group Seres, 2022, IBM. 2022)</p>                       | <p>It allows exchanging not only information but entire standardized documents, which allows completely eliminating the traditional paper transaction and providing the automation procedure, eliminating errors and saving time for companies.</p> | <p>(+) Saving time and money,<br/>(+) Improved efficiency and productivity,<br/>(+) Reduction of errors by being in standardized format,<br/>(+) Improved report traceability<br/>(+) Increased positive customer experiences by having faster and more reliable delivery of your products and services available.</p> | <p>Facilitating the exchange of documents between the client company, the carrier, the transport company, and the destination company, can be a very interesting application that has been implemented and updated for years.</p>       |

|   |   |  |   |
|---|---|--|---|
| <p>8. ERP'S<br/>(Cronomia, 2021).</p>                                 | <p>These systems directly link the company with other agents, such as suppliers, in order to coordinate their actions optimally.</p>  | <p>(+) ERPs do not have incompatibility problems between devices<br/>         (+) They do not occupy memory in the computer since the information can be stored in the cloud.<br/>         (+) They are safer because when they close, the information is never lost.<br/>         (+) It is intuitive and easy and makes everyday tasks almost automatic or with little effort,</p> | <p>An example of ERP in logistics can be SAP, which will help resource planning.</p>  |
| <p>9. CRM<br/>(Ortiz, 2022)</p>                                       | <p>It consists of a set of practices and technologies that focus on customer service that work by collecting information from them.</p>   | <p>(+) Improve our marketing and sales system,<br/>         (+)Increases the customer relationship throughout their treatment with the company.<br/>         (+) They will centralize the information and have it available for future needs of the company.<br/>         (+) They allow leads to be lost, since all the information is recorded from minute one.</p>                | <p>They can be used to collect information about customers, to later make decisions and execute email marketing or RRSS actions.</p>  |
| <p>10. OMNI-CHANNEL<br/>(Tecno hotel News, 2021)</p>                  | <p>It means the unification of several experiences that were initially separate (such as the one that occurs in person, the one that takes place over the phone, and the one that takes place via email) into just one experience that interconnects each step of the flow.</p> | <p>(+) Improves the customer experience.<br/>         (+) Arouses customer interest: more loyal customers.<br/>         (+) Comfort for employees.<br/>         (-) Costs of management and control of correct operation.</p>  | <p>It can be implemented both in the user experience, making the service provided unify between virtual, telephone and face-to-face channels, even in payment methods.</p>                                    |
| <p>11. DIGITAL-TWIN<br/>(Alimarket SA. 2020)</p>                      | <p>It consists of the ability to replicate a real physical scenario, in virtual format, to be able to experience changes or different situations and see how said scenario would behave in the face of the imposed modifications.</p>   | <p>(+) Facilitates decision making<br/>         (+) Infinite possibilities<br/>         (+) Simplifies business processes<br/>         (-) Expensive implementation<br/>         (-) Requires advanced technical knowledge.</p>  | <p>We can simulate an inventory and program the existing processes, so we can easily see if they are executed in the most optimal way. We can also detect errors and identify products with low turnover.</p> |
| <p>12. DET (ELECTRONIC TRANSPORT DOCUMENT)<br/>(Wana Truck. 2021)</p> | <p>Until recently, there was an obligation to carry all the documents of a transaction in a transport service on paper, such as a consignment note, delivery note, etc. Now, in addition to being completely legal, the D.E.T. It provides many</p>                             | <p>(+) Time saving.<br/>         (+) Cost savings.<br/>         (+) Makes work easier.<br/>         (+) Removes the paper.<br/>         (-) Requires technological skills.<br/>         (-) Initial cost to generate them.</p>   | <p>It can be applied to the extent that a carrier carries a mobile phone in the vehicle that allows them to digitally scan and provide the delivery note..</p>  |

|  |   |  |  |
|--|---|--|--|
|  | effectiveness advantages and allows you to carry all these documents digitally.   |  |  |
| 13. QR's<br>(Miñarro, 2019)              | It really is a UPC barcode with the added value that it can be read by a mobile phone and has more data storage capacity than a simple barcode.                           | (+) Free to generate.<br>(-) It is necessary to download a QR reader according to devices.<br>(+) Quick to use.<br>(+) Intuitive.  | It can be applied together with the previous one in a transport service.   |
| 14. IMAGE RECOGNITION<br>(Baufest, 2020) | It is a very complex science in which a computer can perceive an image and through established parameters I recognize what is in the image and I can relate it to events. | (+) Anticipation.<br>(+) Security.<br>(-) Privacy Violation.   | Use in GPS that through a satellite visualization of the condition of a road can warn you if the traffic is very busy. |
| 15. BLOCKCHAIN<br>(Alimarket SA. 2020)   | It allows to record and verify digital data of different transactions between different computers, in a way that allows to reduce excessive bureaucracy.                  | (+) Automation<br>(+) Greater security in contracts (it is based on smart contracts that are executed when a series of events occur).<br>(+) Transparency<br>(+) Transaction speed<br>(+) Reduction of transaction costs<br>(-) Implementation costs<br>(-) High level of knowledge to understand its operation. | A system can be built that allows each product to be tracked in a warehouse or in the tracking of its transport.       |
| 16. GEOLOCATION<br>(García, 2019)        | Allows you to locate where an object is at a given time.  | (+) Know the position of the truck<br>(+) Location information in case of loss or accident.<br>(-) Radioactive waves transmitted by satellite that can affect the health of truckers in the long term.   | Allows monitoring of a truck in addition to knowing when it is unloading.  |

Source: Own elaboration with quoted information.

Of all these technologies that are trends in logistics, we are going to apply a filter, in which we discard those that are not the best option for the transport of goods or those that, due to their size, are not applicable to *Transportes CAF Lara*.

#### ➤ TECHNOLOGIES ALREADY USED

However, before this, it is worth remembering the technologies that the company is already implementing, as we discussed in the internal analysis: "Meribia Transporte SQL"

which is used for invoicing trips, "Wtransnet" which is a platform to find trips or to optimize existing loads and "Diesel Plus" which is a program consisting of controlling the refueling of each vehicle. In addition to the table above, *Transportes CAF Lara* already uses **geolocation** to track its trips, but as we will see below in our improvement proposal, we will give geolocation more additional uses.

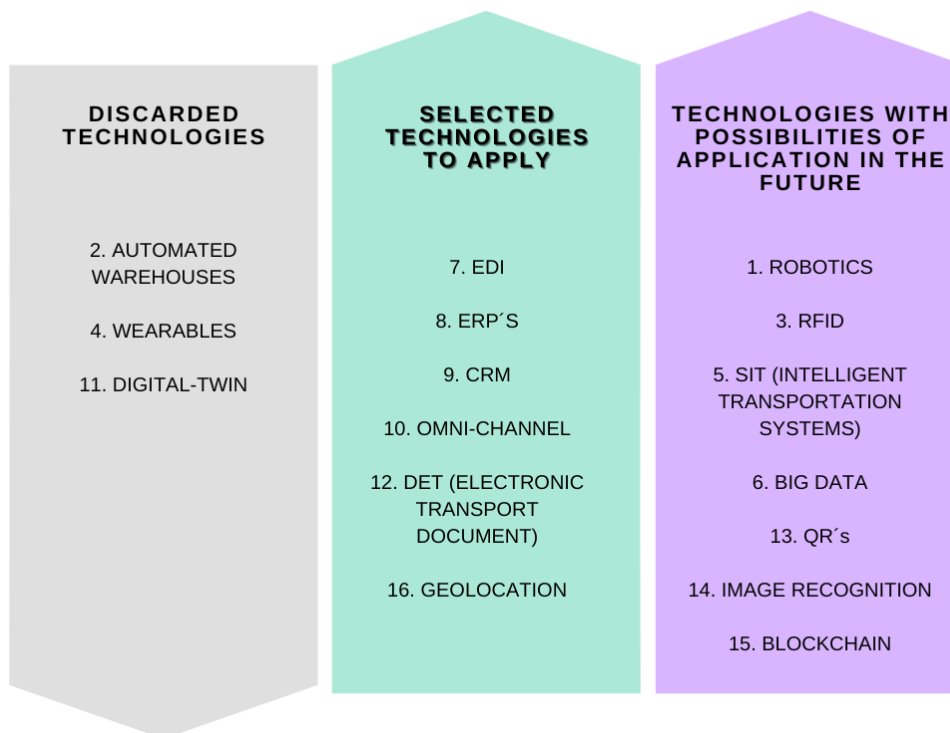
**➤ TECHNOLOGIES TO IMPLEMENT**

Those that we are going to implement in the short term will be marked in **blue**, considered suitable for improving the company's operational strategy.

In **purple**, those that could be useful in the long term, since they are more complex technologies that, due to the size of the company and stage of development, would not be the ideal ones to start implementing at the beginning. However, as we will see in the last subsection "3.5", future long-term uses for some of these technologies can be proposed.

Finally, in **gray** those that are discarded because they are not strictly usable in the transport of goods or because they still have to be further developed for a good application.

**Graphic 7: Choice of the best technologies to apply at CAF Lara.**



Source: Own Elaboration

Next, in the following section we will make some proposals for actions that must be carried out, including some of the technologies that we have considered suitable for *Transportes CAF Lara SL*.

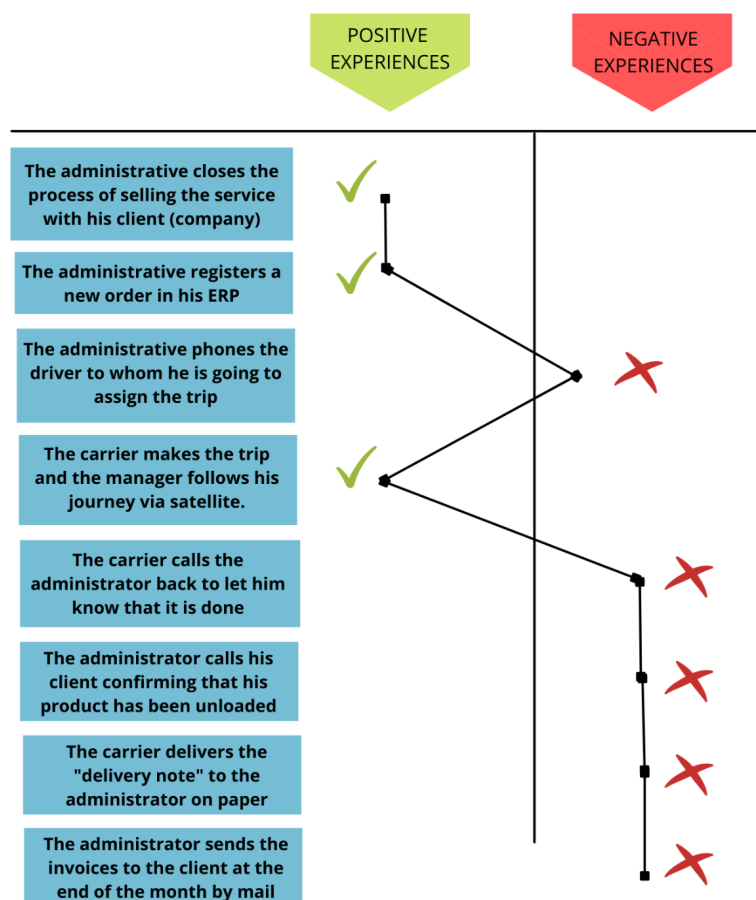
### 3. IMPROVEMENT PROPOSAL FOR TRANSPORTES CAF LARA S.L. IN REFERENCE TO NEW TECHNOLOGIES

#### 3.1. Objectives of the proposal

Based on the analysis carried out at the beginning of this project and following the principles established by the mission, vision and general objectives of the company, 3 objectives have been developed regarding the application of new technologies to *Transportes CAF Lara SL*.

However, before defining the objectives, we are going to illustrate where their formulation comes from. To this end, a service provision **experience map** has been designed, which will allow detecting which points are being carried out satisfactorily and which are not.

**Graphic 8: Experience Map before proposal.**



Source: Own elaboration

All the actions that have to do with the initial communication between the company administrator and his client are marked as satisfactory, since it is a telephone contact that provides the company with a very direct contact with the client, which is one of its differentiation attributes and that the company does not intend to modify.

In addition, as we have mentioned, the company tracks the vehicle via satellite, which is a wise move.

However, we will mention why the actions marked as "improvable" are not positive:

- **The administrative phones the driver to whom he is going to assign the trip:** The administrative wastes a lot of time doing this function and it could be automated to make it more comfortable.
- **The carrier calls the administrator back to let him know that it is done:** The same as the previous. This action could be automated as if it doesn't take much time.
- **The administrator calls his client confirming that his product has been unloaded:** To carry out this action, we have to bother the client with another call, which may not be satisfactory, and the administrative staff again wastes time on tasks that may be automatic.
- **The carrier delivers the "delivery note" to the administrator on paper:** It is no longer necessary to carry the delivery note on paper. This action greatly lengthens the completion of the service.
- **The administrator sends the invoices to the client at the end of the month by mail:** It is not necessary to send the invoices to our clients one by one, it is an automatable task.

As can be seen, there is much room for improvement in automation, since a lot of time is being devoted to document processing, and this is a problem for the administrative staff.

In addition, a negative aspect can also be seen when we have to call the client again, since this action can bother him with an unnecessary part, which makes the client not feel 100% satisfied and is interested in looking for other carriers that work more automatically and faster. In this sense, we will have to work on customer loyalty, since this is one of the general objectives of the company.

After this explanation, we formulated the following 3 objectives for the company *Transportes CAF Lara S.L.*:



Table 11: Proposed Objectives

| O B J E C T I V E S   |  |   |
|---|--|---|
| 1. Reduce the time spent managing information by 20%.                   | 2. Increase Gold Clients by 30%.   | 3. Increase up to 5 stars the satisfaction of Gold Clients                        |
| <b>INDICATOR</b><br>% of weekly hours dedicated to managing information | <b>INDICATOR</b><br>% of clients who work with the company between 3-5 days a week | <b>INDICATOR</b><br>Overall rating (in stars) in the monthly satisfaction survey. |

Source: Own elaboration

→ **1. Reduce the time spent managing information by 20%.**

The administrative staff, as we have seen in the previous map of experience (graphic 8), spends too much time on information management tasks that could be automated and would have more time to spend on other more important functions.

Currently 40 hours a week, he spends approximately 70% of the time managing information. This time must be reduced by at least 20%, so the indicator will be the weekly hours dedicated to processing information.

→ **2. Increase gold customers by 30%**

If we recall the internal analysis of this project, we segment *CAF Lara* customers according to their frequency of trips and their importance to the company:

| CLIENT TYPE           | IMPORTANCE |
|-----------------------|------------|
| Loyals A              | 3          |
| Loyals B              | 4          |
| Loyals C              | 5          |
| Occasional Nearby A   | 1          |
| Occasional Nearby B   | 2          |
| Occasional Nearby C   | 4          |
| Occasional National A | 1          |
| Occasional National B | 3          |
| Occasional National C | 4          |
| Insular B             | 3          |
| Insular C             | 4          |

“Loyals” clients are those who work daily with Transportes Lara. However, we observe that there are some occasional customers such as “*Occasional Nearby C*”, “*Occasional National C*” and “*Insular C*” that have a higher level of importance than the rest of the temporary ones, since although they are not daily customers, they are quite regular.

**Table 12: Recap of customer segments with Range**

For this reason, we will call the “Loyals” as “Gold Clients”, and those just mentioned, “Silver Clients”.

The objective will be to increase Gold clients (clients with a high frequency of travel), either by converting “Silver” to “Gold” or by obtaining new clients.

| CLIENT TYPE           | IMPORTANCE | RANGE  |
|-----------------------|------------|--------|
| Loyals A              | 3          | GOLD   |
| Loyals B              | 4          | GOLD   |
| Loyals C              | 5          | GOLD   |
| Occasional Nearby C   | 4          | SILVER |
| Occasional National C | 4          | SILVER |
| Insular C             | 4          | SILVER |

*Source: Own elaboration*

In conclusion, increasing the number of Gold customers will achieve the two general objectives of the company: "Increase the portfolio of loyal customers by 5% compared to the previous year." and "Increase revenue by 5% in 2022." Since they are more frequent, they generate more income.

→ **3. Increase up to 5 stars the satisfaction of Gold Clients.**

Not only is it enough to get customers to become Gold, but we will also have to take actions to keep them, and to help achieve the goal of increasing loyal customers. For this, we will use satisfaction questionnaires as a measurement indicator, and we will have to achieve 5\*\*\*\*\* in the evaluation of our clients, after implementing the actions that we will explain below.

### 3.2. Improvement actions for the company

As a result of the proposed objectives, we are going to develop some actions to try to achieve them. In total, 9 actions are developed, which are described below:

**Table 13: Proposed Actions**

| <b>O B J E C T I V E S</b>   |   |  |
|--|---|--|
| <b>1. Reduce the time spent managing information by 20%.</b>   | <b>2. Increase Gold Clients by 30%.</b>   | <b>3. Increase up to 5 stars the satisfaction of Gold Clients</b>                                |
| <b>INDICATOR</b><br>% of weekly hours dedicated to managing information  | <b>INDICATOR</b><br>% of clients who work with the company between 3-5 days a week    | <b>INDICATOR</b><br>Overall rating (in stars) in the monthly satisfaction survey.                |
| <b>A C T I O N S</b>   |   |  |
| <b>ACTION A</b><br>APP for communication between carrier and administrator   | <b>ACTION F</b><br>Email Marketing  | <b>ACTION I</b><br>Increase of the discount up to 7%, for staying in the Gold category +5 years. |
| <b>ACTION B</b><br>Geolocation   | <b>ACTION G</b><br>Discount on monthly invoice of 4%                                  |  |
| <b>ACTION C</b><br>Electronic Transport Document (DET) through which the carrier sends the delivery note directly to the administrator | <b>ACTION H</b><br>Access for Gold Clients to real-time tracking of their merchandise |  |
| <b>ACTION D</b><br>Automatic confirmation email  |   |  |
| <b>ACTION E</b><br>EDI for month end billing   |   |  |

Source: Own elaboration

Next, we will explain what each of the actions mentioned in the previous table consist of:

⇒ **ACTION A:** *Objective 1*

This action will consist of a mobile application that will be both on the administrator's computer and on the mobile devices that the carriers will carry in their truck.

Through this device, the administrator will assign the trips to each carrier and they will receive it on their mobile knowing through a map how to get to the destination.

When the journey ends and the merchandise is unloaded, the carrier will press the "*finished*" button, and this information will appear to the administrator.

⇒ **ACTION B:** *Objective 1*

The company is currently implementing geolocation to track the vehicle via satellite.

However, this technology will be used for actions corresponding to objectives two and three through "Action H".

⇒ **ACTION C:** *Objective 1*

The Electronic Transport Document (DET) will speed up delivery of the delivery note to the administrator. Instead of having to wait for the carrier to arrive at the office to deliver the paper waybill, this technology will allow the carrier to scan the waybill and have it instantly received by the administrator and recorded in their computer system.

⇒ **ACTION D:** *Objective 1*

In order not to have to make a call to the customer again confirming that their merchandise has been delivered, a confirmation and thank you email will be automatically sent to the customer.

This e-mail message will be sent thanks to the application used for "Action A": when it detects that the download has been carried out, it will automatically notify the client of the end of our service.

⇒ **ACTION E:** *Objective 1*

Through an EDI system we can directly share entire documents between companies. For this reason, instead of manually sending each email to each client with its corresponding invoice, the EDI will be in charge of automating this process.

⇒ **ACTION F:** *Objective 2*

This action is intended for Silver customers:

An email will be sent to them at the end of each month thanking them for having worked with *CAF Lara* transport and reminding them of the trips they have made with the company that month. You will also be informed that by increasing these trips from 3 to 5 a week, you will become a GOLD customer, explaining all the advantages of being in this category.

⇒ **ACTION G:** *Objectives 2 and 3*

Within the Gold Client Category, they will be offered a 4% discount on each month's bill, to encourage, on the one hand, to increase the number of contracts with *CAF Lara* if they are not yet in the Gold category, and on the other part, to the Clients who are already Gold, continue working with the company.

⇒ **ACTION H:** *Objectives 2 and 3*

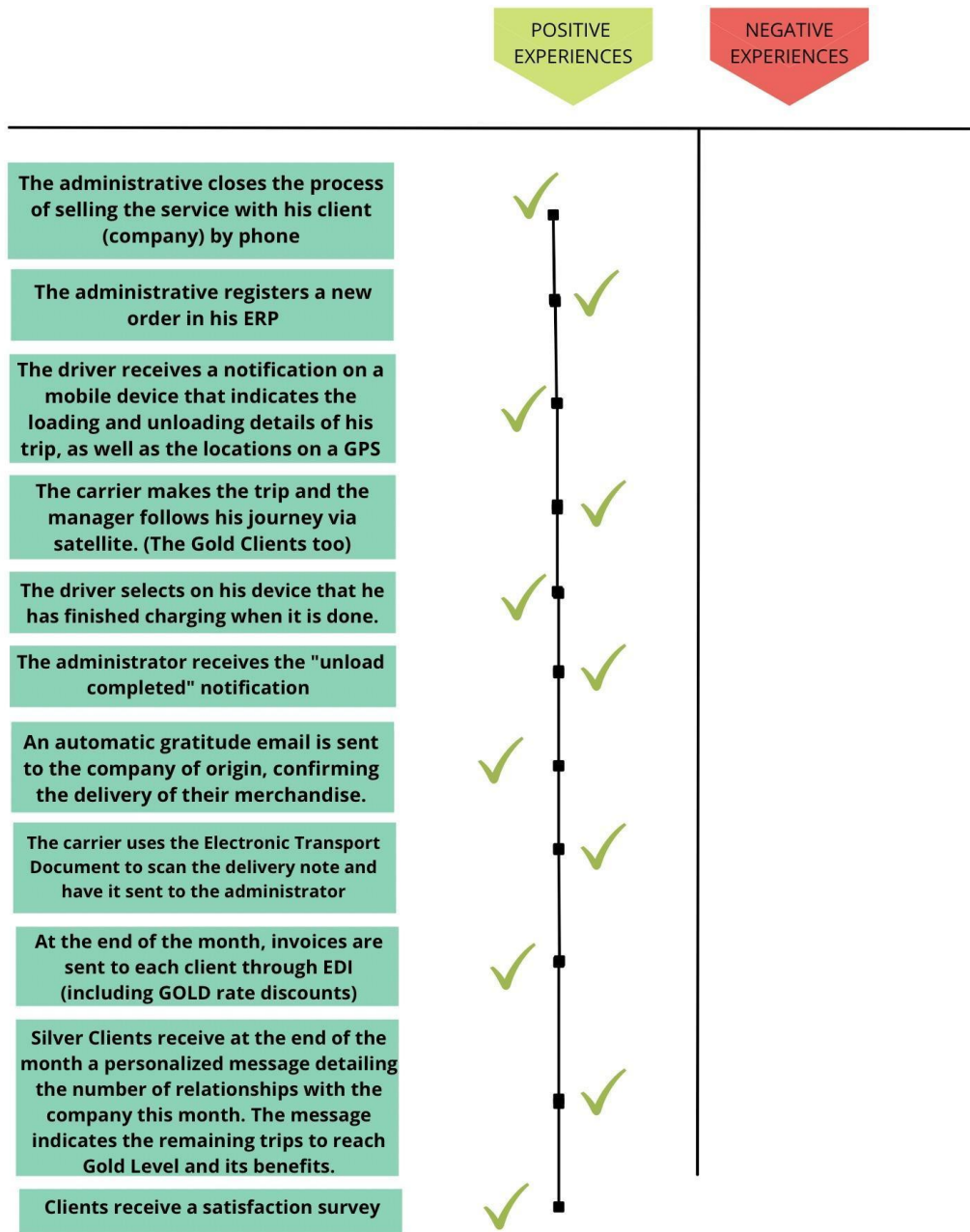
Another advantage of the Gold Loyalty Plan will be the possibility of having the real tracking of our vehicles, to be able to know what is happening at all times with your merchandise and estimate when they will arrive at their destination.

⇒ **ACTION I:** *Objective 3*

To boost the interest of Gold Clients in staying with *Transportes CAF Lara*, the discount will be increased to 7% of their total monthly bill, after 5 years working with us, to foster long-term relationships with the customers. It should be noted that while the above actions are to be applied in the short term, this one will be used for the long term.

To finish with the proposal, we are going to illustrate that by applying these actions, the previous **Experience Map** would change. Below is an **updated version** that will optimize the previous one, so that the workflow is streamlined through the application of new technologies.

**Graphic 9: New experience Map.**



Source: Own elaboration

### **3.3. Budget for the Actions**

Below is a table with the cost of assuming each action. It should be noted that some, as indicated, are not direct costs, or are costs that are already being assumed. The sources from which the information on prices has been obtained is attached at the end of section 5, in "Sources of budget information".

**Table 14: Budget for the Actions**

| ACTION  | BUDGET  |
|---|---|
| ACTION A: APP for communication between carrier and administrator   | Meribia Mobile: <b>3.500€</b><br>Monthly Fee: <b>150€/month</b>   |
| ACTION B: Geolocation   | Integrated into the current costs of the company  |
| ACTION C: Electronic Transport Document (DET) through which the carrier sends the delivery note directly to the administrator | DigiFact-In: <b>1500€</b>   |
| ACTION D: Automatic confirmation email  | Mailchimp: <b>17€/ month</b>  |
| ACTION E: EDI for month end billing   | EDI Software: <b>2,000€</b><br>Integration of the software with the usual ERP: <b>1,500€</b><br>Annual maintenance: <b>500€/ year</b><br>Monthly Fee: <b>50€/ month</b> |
| ACTION F: Email Marketing   | Mailchimp (Included in "Action D" fee)  |
| ACTION G: Discount on monthly invoice of 4%   | Assumed in the activity of the company  |
| ACTION H: Access for Gold Clients to real-time tracking of their merchandise  | Assumed in the activity of the company  |
| ACTION I: Increase of the discount up to 7%, for staying in the Gold category +5 years.                                       | Assumed in the activity of the company  |
| <b>TOTAL FIRST YEAR</b>   | <b>11.604€</b>  |

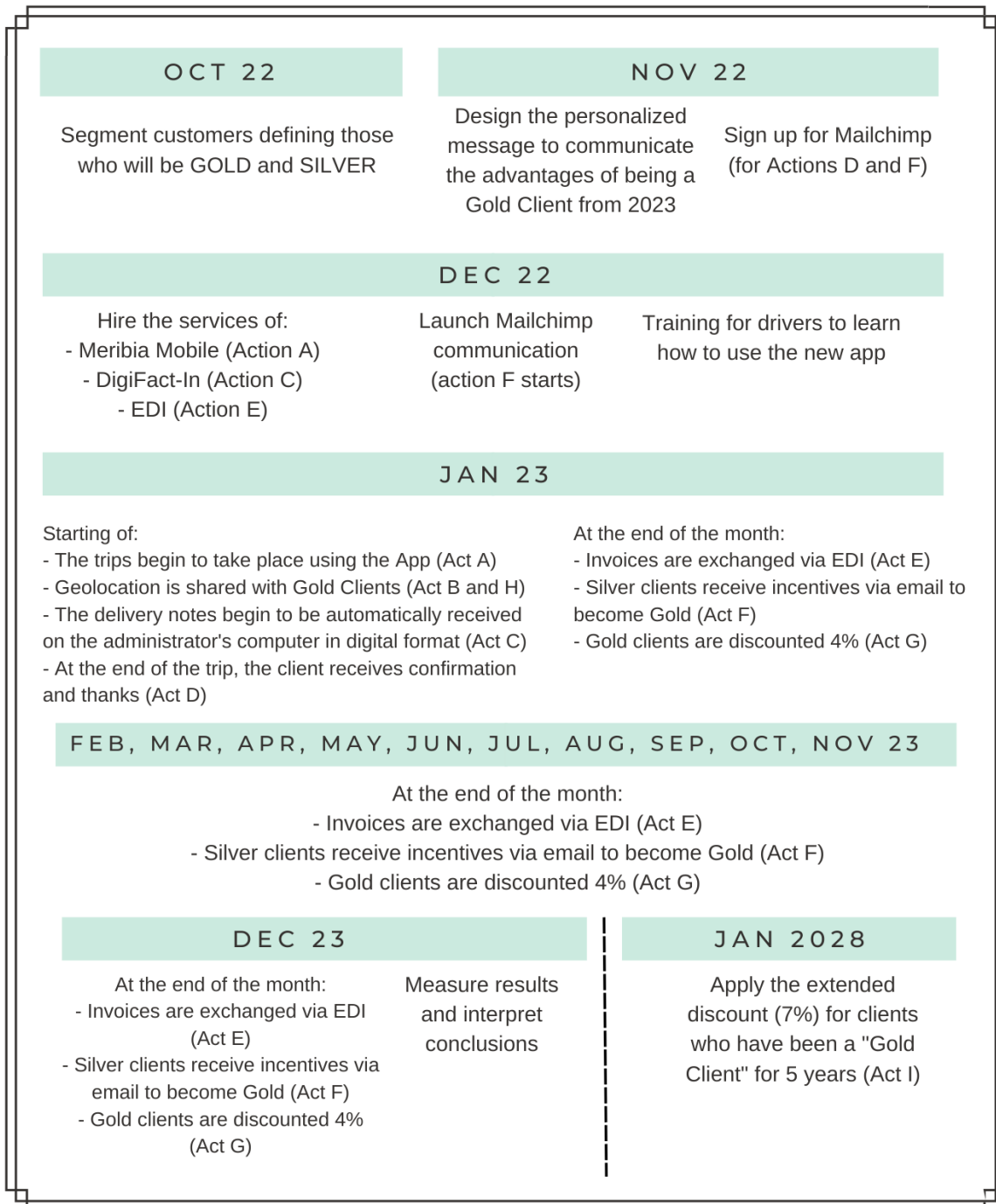
Source: Own elaboration

### 3.4. Action Schedule

This proposal is designed for annual objectives, so it should start to be carried out from January 2023. However, there are some actions that require prior preparation, for this reason they are located in the last months of 2022.

Furthermore, as we explained in the Actions, they are all for the short term, except for "Action I", which will be implemented in 2028.

**Graphic 10: Actions Timing**



Source: Own Elaboration.



### **3.5. Future introductions of new technologies**

As we discussed in Figure 7, there are some technologies that, due to business size issues or simply because they are more far-reaching technological advances, were ruled out for short-term application at *Transportes CAF Lara S.L.*

However, as the company increases in size and becomes more technologically efficient, it will be possible to apply these new technologies mentioned.

Some of the subsequent actions to follow after having controlled the actions proposed in this plan, could be:

- Robotics: Through the use of a Robotics system, an area could be automated to change the tires by means of a mechanical arm when the system detects that their temporary wear has reached its residual value. It could also be implemented to refuel without human effort.
- Intelligent Transportation Systems (SIT): Installing this system in each driver's truck would improve their work experience and reduce travel time, for example, through automatic payment of tolls without the need to stop, or simply avoid traffic jams or accidents that delay the delivery of the transported product.
- Big Data: With the help of the SIT, Big Data makes it possible to study and improve routes to also reduce travel time and improve the experience for the customer.

**Image 8: Future technologies**



Sources: Alamy (2022), Ministerio de Transporte (2022), Europa Press (2018)

As we can see, these actions would also help to achieve the objectives, since they serve both to reduce the time performing operations and to improve customer satisfaction, by reducing times

#### **4. CONNECTION WITH THE DEGREE**

Lastly, the subjects of the degree in Business Administration that are directly related to this Final Degree Project are exposed, as they include some part of the syllabus dealt with in the subject:

- AE1010 Introduction to Business Information Systems (*AE1010 Introducción de los Sistemas de Información en la Empresa*)
- AE1014 Business Management (*AE1014 Dirección de Empresas*)
- AE1018 Foundations of Marketing (*AE1018 Fundamentos del Marketing*)
- AE1025 Operational Marketing (*AE1025 Marketing Operativo*)
- AE1030 Implementation of Business Strategies (*AE1030 Implantación de estrategias empresariales*)
- AE1033 Distribution Channel Management (*AE1033 Gestión de Canales de Distribución*)
- AE1040 Business Creation (*AE1040 Creación de Empresas*)
- AE1041 Business Innovation Management (*AE1041 Dirección de la Innovación en la Empresa*)
- AE1047 Management of Organisational Information Systems (*AE1047 Gestión de Sistemas de Información en Organizaciones*)

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- **Primary.**

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- **Secondary.**

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- **Sources of budget information.**

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Mailchimp cost:

<https://mailchimp.com/es/pricing/marketing/?&msclkid=7eb1e4107c961686c9df86664002ccfe&gclid=7eb1e4107c961686c9df86664002ccfe&gclidsrc=3p.ds>

DigiFact-In cost: <https://chumillassl.es/facturas-electronicas-digifact-in-kit-digital/>

Meribia Mobile cost: Primary information