

# CARROT

*The healthiest comparator*



## Master Thesis Project

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# 1 Introduction

## 1.1 Presentation of the project

This document presents the final work of the master's degree done in the postgraduate course in the School of Industrial Organization of Madrid. In particular, it is a project of entrepreneurship following the Lean Start-up methodology.

Analysing current society and its needs, it has been noticed the large number of diseases whose origin lies in food. It has also been observed that more and more, the population is aware of the importance of a balanced diet to health. Therefore, and based on these two premises, it was raised what could be done to help the population to bring healthier diet and improve their health.

Thus, it was decided to develop the mobile application: Carrot, the Healthiest Comparator.

The initial objective considered with this application was to solve a problem facing the majority of the population and it is to find time to look for the most suitable food for each person among the immense food supply. With the current pace of life and increasingly demanding work requirements, the consumption of ultra-processed foods is increasing, resulting in less healthy nutritional habits.

Once the project was made clear, different experiments were carried out, developed later in the operations plan, with the aim of adapting as much as possible the application to the real needs of the population.

## 1.2 Presentation of the team

The team in charge of developing CarrotApp is formed, as it was previously said, by six students from the EOI Business School.

- **Adolfo** is an industrial engineer originally from Badajoz, currently studying a master in Big Data.
- **Cristina** is a forestry engineer from Madrid that is studying her master degree in Environmental Engineer and Management.
- **Laura** has a bachelor's degree in Environmental Sciences and is enrolled in the Master in Water Engineer and Management.
- **Mariña** is a Marine Scientist currently studying an International Master in Sustainable Development and Corporate Responsibility.
- **Rafael** is an engineer with a previous master's degree in industrial engineering and part of the Master in Renewable Energies and Energy Market.
- **Sergio** is a Mechatronic engineer and, as well as Adolfo, student of the Master in Big Data.

Their concerns about entrepreneurship begin when they start their master's degree at EOI. Through a series of lectures taught by entrepreneurial experts, team members begin to have entrepreneurial spirit. Both the economic and political situation of the country and the instability of employment are the main engines that promote that the team wants to carry out a project of these characteristics.

All of them are aware of the implication that the entrepreneurship requires, and they also know that if in the following years they are forced or decide to undertake, the maximum use of this learning must be obtained.

## 2 Business model design

### 2.1 Empathy map

An empathy map is a collaborative tool that teams can use to gain a deeper insight into their customers. Much like a user persona, an empathy map can represent a group of users, such as a customer segment (Bland, 2016). The empathy map was originally created by Dave Gray and has been gaining popularity with the agile community.

To know the customer to which the team is addressing a list of questions must be answered:

- What does the customer **see**? The customer is an adult surrounded by both positive and negative incentives who wants/needs to take care of nutrition.
- What does the customer **do**? He tries to make always good decisions (not the easiest one).
- What does the customer **say**? He says, "It's important to take care of their health and what they eat".
- How is the **behaviour** of the customer when he/she is **in public**, what does the client **look**? When the customer is in public, he/she tries to look concerned about latest trends on lifestyle/nutrition. The customer seems always concerned about his appearance, although he tries to not to look very obsessed.
- What is the **attitude** of the customer against the proposals of the companies? His/her **contradictions**? The client is surrounded by social media and companies are constantly using these media to reach the customer. As the "instagrammers" and "youtubers" are taking the promotions that companies offer them all the time, the customer desires to emulate them, and he accepts what the companies have to give.
- What does the customer **hear**? The customer hears that he/she should "improve their health or look for options that would suit nutritional requirements". He/she is Influenced by Bloggers, influencers, nutrition and fitness experts, and external stimuli. He/she is also convinced by Television, social media ads, magazines, and promoters.
- What does the customer **think** and **feel**? Things like "health is in" are in their minds, as long as the necessity of new things so they do not get bored of their healthy lifestyle. There is also a need of improving health and learn about nutrition.
- What are the main **frustrations** of customer? What are the main obstacles of for the client to achieve? What hurts the most is not being healthy and/or fitted and a possible lack of knowledge about what eats.
- Which are the benefits that the customer can get? What about what the customer really wants to **achieve**? How to measure customer success? What strategies would use the client to achieve it? He/she aspires to feel good with the decisions taken, his external shape and her blood tests. The strategy followed is achieved by eating healthier.

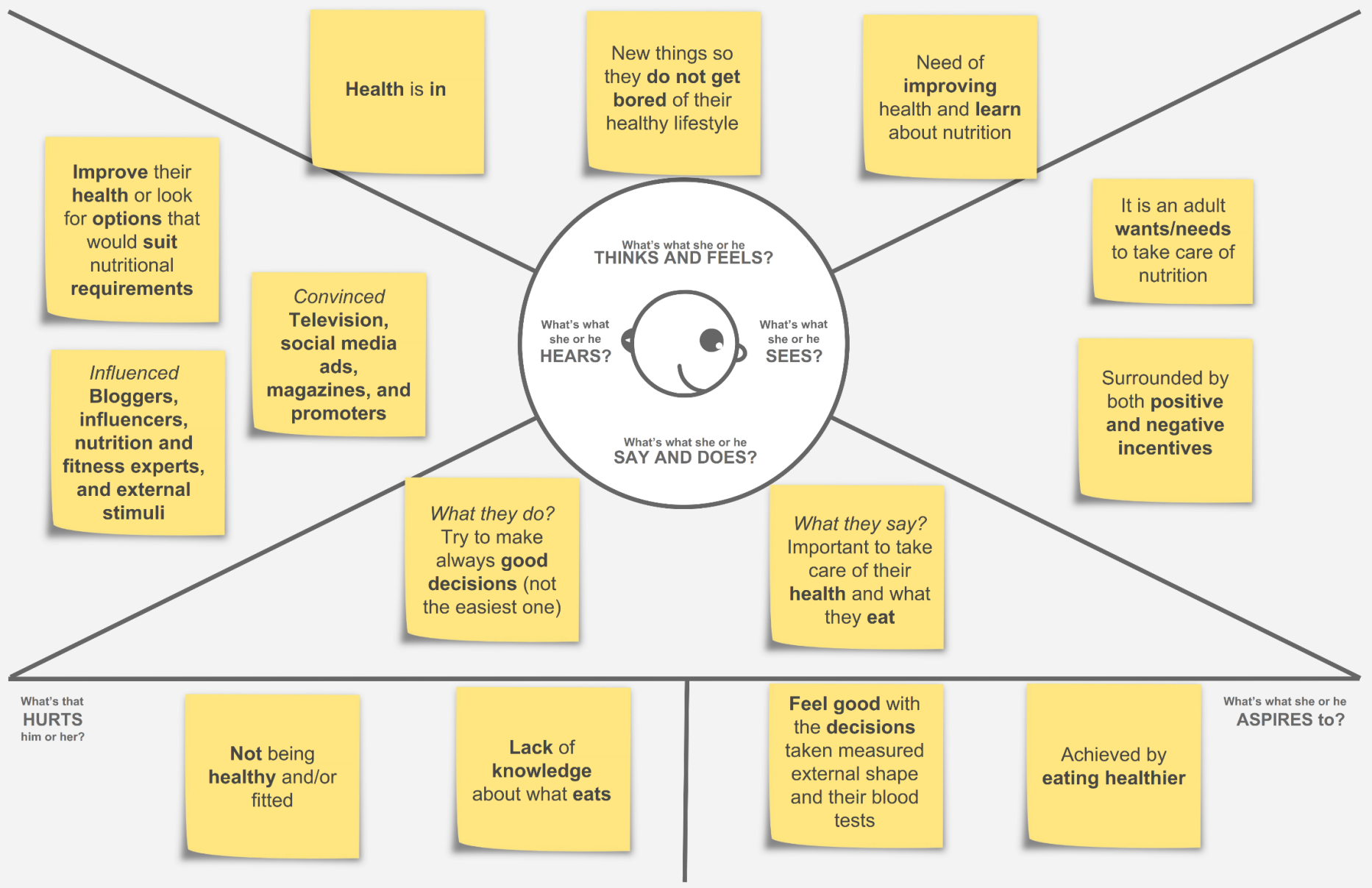
# Empathy Map

Nombre del Usuario / Cliente: **CarrotApp**

Diseñado para: **EOI**

En: 28/05/2018

Por: Carrot App



## 2.2 Value proposition

The Value Proposition Canvas (VPC) is a business tool that can help you create, design and implement value propositions. It is a tool which is used by tutors, trainers and business start-ups to look at the 'fit' between customers and our products/services. In summary, this canvas must help the entrepreneurs to answer questions like:

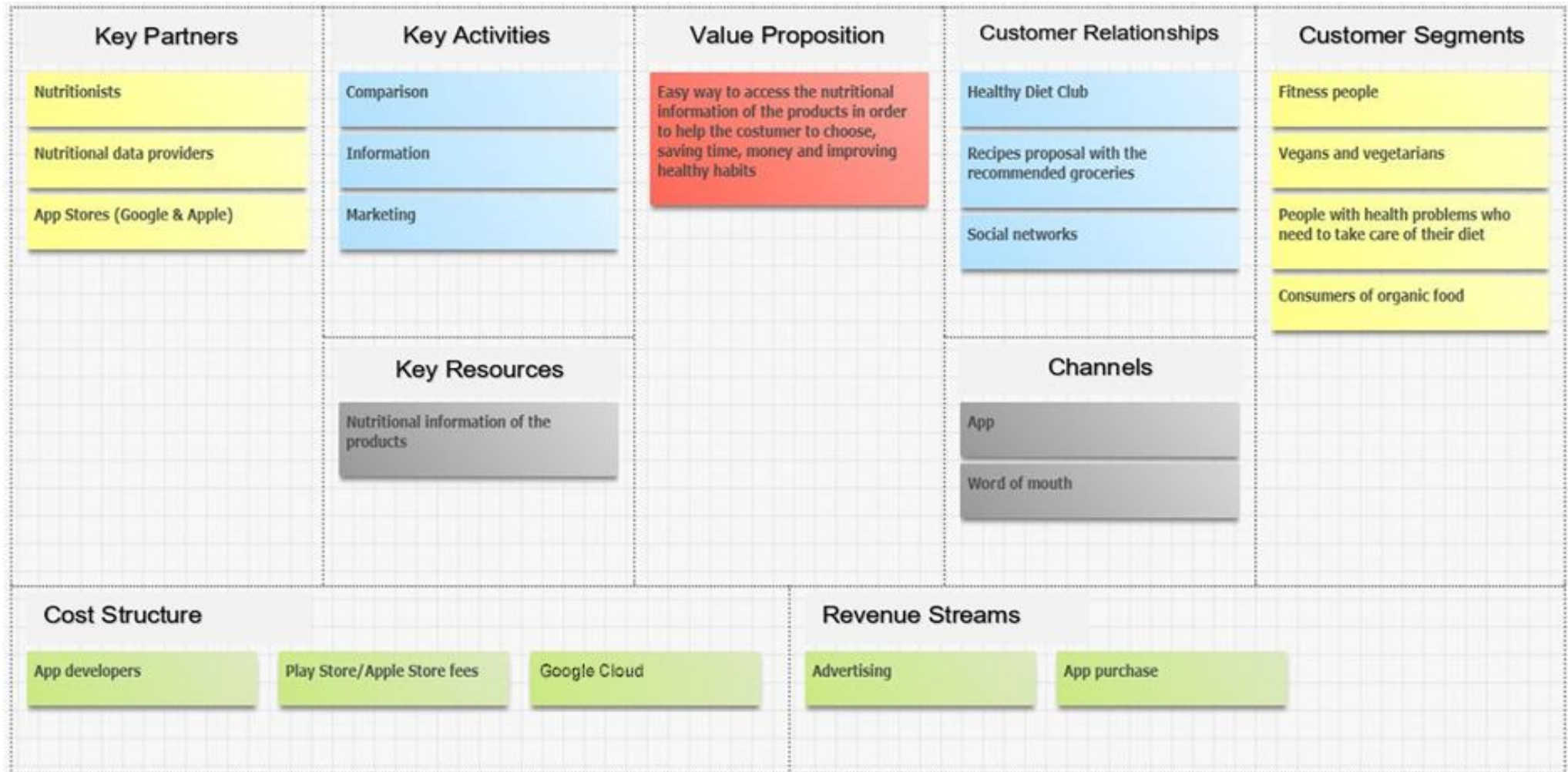
- How your company, product or service solves the problem or your client's needs?
- Which are the benefits should the customer expect?
- Why the customer should choose your company and not others?
- What is your differential value?
- Given the conclusions of the value proposition, what will be your product or service?

The customer segment is people suffering diseases or concerned about their nutrition. The customer jobs are to improve their health, learn about nutrition, find new healthy recipes and the best products. With other companies of the competence, they can gain in nutritional advices & health recipes, a personalized and simple experience, information about food compounds, nutritional facts comparator, and to have a barcode scanner. Otherwise, what they find in the market (pains) are calorie-based instead nutrient-based comparator, lack of understanding about ingredients, health issues, and incomplete databases.

As CarrotApp the gains offered to the clients are products' nutritional facts comparator, healthy recipes & blog posts, the app gives the best choice of product, nutritionist consultation chat, social media to share own experiences. As pain relievers, we offer to feel better with themselves by buying the healthiest choice, to reduce time of label reading, to simplify the current chores, and to reduce effort by having the best choice only a click away.

Given the conclusions above, what CarrotApp offers is an app (digital product) that can help users to buy products that would suit their nutritional requirements (online services).

## 2.3 Business model canvas



It has been developed the Business Model Canvas in order to have a quick overview of how an organisation creates, delivers and captures value. Furthermore, business model allows organisations to weight the market and with the right strategy and approach, adopt to it.

- The **customer segment** is composed by fitness people, vegans and vegetarians, people with health problems who need to take care of their diet and consumers of organic food as all they need to take into account every food they eat, either for health objective reasons, weight targets, incompatibilities, allergies, or beliefs. The team has not considered the segment of classical customers, the segment of the type: "Spanish woman between 20 and 30 years old". Instead of that, the Carrot team has tried to cover the whole segment of population to which CarrotApp can reach.
- Carrot team is trying to keep a strong **customer relationship**. This will be done through three main channels: Healthy Diet Club, Carrot Advice and Talk to Our Nutritionist.
  - **Healthy Diet Club** is a corner of the app where users can exchange points of view about nutritional aspects, for example.
  - **Carrot Advice** is a blog with weekly posts with many information such as "healthy breakfasts", "tupper ideas", "problems with palm oil", etc.
  - Finally, **Talk to Our Nutritionist** is a section always prepared for all the doubts the clients might have.
- The **channels** are via app and word of mouth.
- The **value proposition** is "an easy way to access the nutritional information of the products in order to help the customers to choose, saving time, money and improving healthy habits".
- The **key activities** of CarrotApp are: comparison, information and marketing:
  - First of all, comparison between products. This is very important, because there is not any comparator of products in Spain, only groceries comparator.
  - The second activity is information, because through the channels previously mentioned the application provides the customer with lot of nutritional information.
  - The third one is marketing because the team puts the focus of its activity in the rising of the sales and it tries that people choose this app instead of other traditional systems.
- For that purpose, the **key resources** are the nutritional information of the products. Without this information, comparison is impossible, so a good database is needed for this project. Moreover, this way is easiest for the nutritionist to provide tips.
- The **key partners** are therefore nutritionist, nutritional data providers, and App stores for the information dissemination (such as Google and Apple).
- The **revenue streams** will come from advertising, taking into account the number of visitors of the App and App purchase.



- Finally, the **cost structure** will be formed with the salary that will be paid to app developers hired, the Play Store/App store fees, which will be a part the first year and then the rest of the parts annually, and the Google Cloud Platform which will provide the digital infrastructure to run Carrot App. Cloud computing has been evolving the way businesses operate these days. Companies of all the shapes and sizes have been adapting to this new technology. Industry experts believe that cloud computing will continue to benefit companies in the coming few years.

Carrot's chosen provider is Google Cloud, since it has a lot of powerful tools and services, and it's way cheaper than Amazon Web Services, which is the biggest player in this segment.

Key advantages of Cloud Computing with Google Cloud:

- No upfront costs required: Google Cloud Platform is on average 60% less for many compute workloads than other clouds, with 0 € paid upfront.
- Pay-as-you-go: Pay for services on an as-needed basis, save money and direct more focus to innovation.
- No termination fees: The second you turn off services is the second you stop paying for that service.
- Sustained use discounts: Automatically up to 30%-off workloads that run for a significant portion of monthly billing.
- Rightsizing recommendations: Compute sizing recommendations based on usage, so you consume less and save time on management

Since Cloud Computing is likely to be the future, and its advantages fit with our business requirements, Carrot will build the app around it.

## 3 Planning

### 3.1 Operation Plan

This operations plan explains the different operations carried out to develop the project until its current state. The actions to be taken in the future will also be exposed.

#### 3.1.1 Hypotheses and experiments

To validate the project, the first step was to raise the initial hypotheses on which the idea of developing the carrot application was based. Then, different experiments were designed in order to validate the hypotheses and verify their veracity and, if these were not successful, make the necessary adjustments to adapt the project to the real needs of the users. Finally, invalidated hypotheses were rejected.

In the following sections the different steps of the mentioned process will be developed.

#### Initial hypotheses

This section shows the initial assumptions raised when starting the validation of the project:

- Carrot will help users improve their health by providing them all the necessary nutritional information about the products.

- Using a food comparator that allows comparing the different brands of each product existing in the market, the population will make better decisions when making the purchase.
- Although consumers were willing to visit different supermarkets in search of the best product, they do not do it because of the lack of time. With this application, users will take better advantage of their time as they can compare food home and, once they have all the information, they will go to the more convenient supermarket.
- Consumers do not compare food labelling due to lack of time and/or because they do not understand it.
- The team will have the help of a nutritionist to reports on the most important aspects to consider when analysing the nutritional information. There will also be a section in the application where the nutritionist will write post weekly about nutrition.
- The population does not need to move to eat healthy because, collaborating with a distribution company, it will be added the option to make the purchase directly from the application and deliver it at home.
- People will be interested in using a mobile application such as Carrot, The Healthiest Comparator.

## Experiments

In order to validate the above hypotheses, different experiments have been carried out to see if, as has been raised, the population has problems when comparing and choosing the best product for them.

First of all, 9 interviews have been made to randomly selected people obtaining the following results:

- Two of the interviewees are regular users of gyms under 35 years old that pay attention to their food with the aim of obtaining better sporting performances and that they do have the custom to buy groceries according to their nutritional characteristics.
- Five interviewees have turned out to be adults older than 40 years old with some kind of health problem that makes them have to pay special attention to what they eat in order to avoid certain food contraindicated. Although all of them compared the products according to the macronutrients, only one of them compared, in addition, the ingredients and additives. The rest do not do it because they do not understand the labelling.
- Finally, two of the people interviewed do not pay attention to the nutritional information of the products they buy, based on the brands when choosing their groceries. Of these two interviewees, one is under 26 years old and the other older than 65 years.

After the first interviews and once it has been proven that a part of the population considers it difficult to understand the information contained in nutritional labels, it has been surveyed to 59 people residents along all the Spanish geography from 18 to 65 years old in order to have a more representative sample of the population and to be able to know more specifically the consumers' needs. The questions of the survey conducted are shown in appendix 1. The results obtained after carrying out this survey are shown in the following charts:



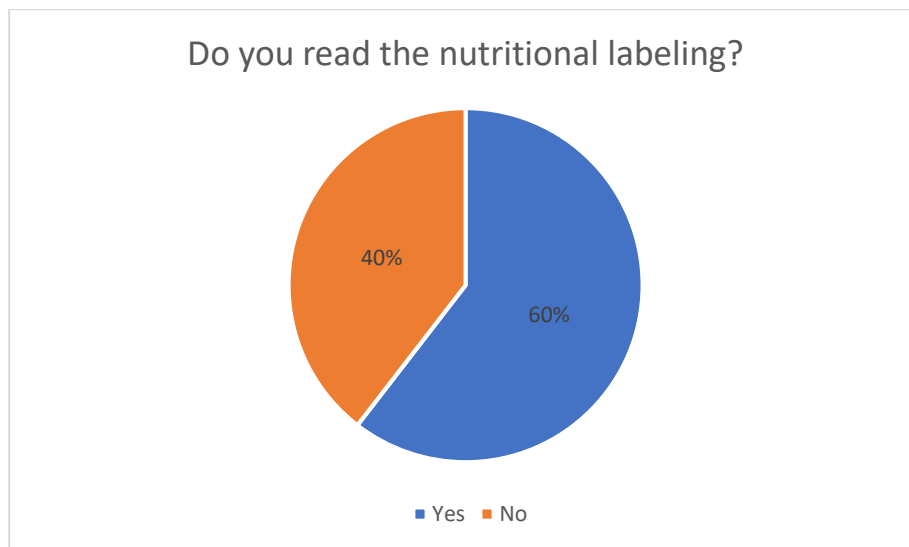
Among all the people interviewed more than an 80% stated that they did take care of their diet. An important fact that it was seen while carrying out these surveys it was that, no matter if they took care or not of their diet, both groups where more interested on buying product with higher quality rather than a cheaper price



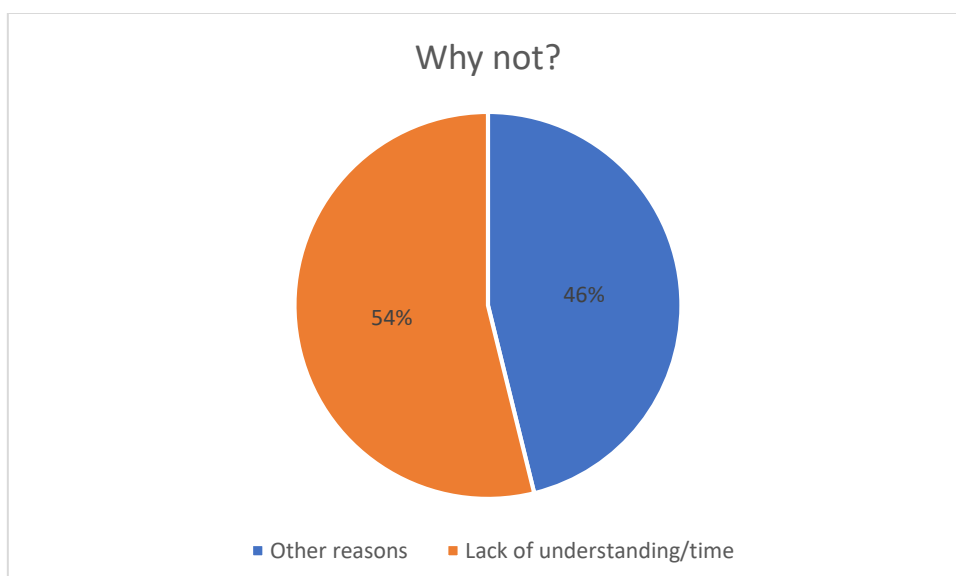
In the first bar graphic, this percentage is visibly higher. In the second bar graphic, interviewees could choose between price, quality or choose both options. The results for this question followed the same trend as the one asked to people that take care of their nutrition habits.

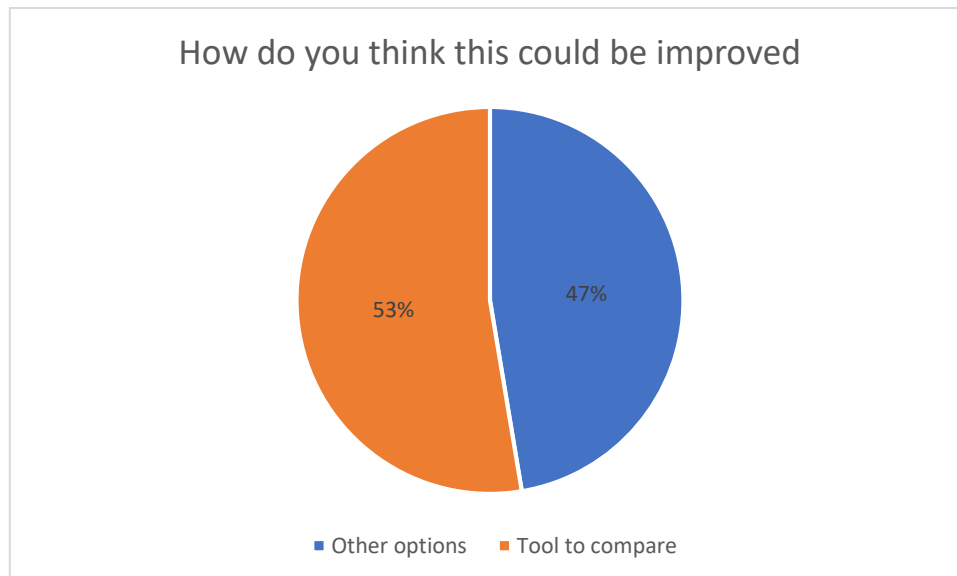
Given the results from the first survey, it has been decided to design another one to get more information about how many people would answer they do not compare nutritional labels due to a lack of time or because they do not understand the information. This second survey contains the questions included in appendix 2.

The results obtained after carrying out this second survey are shown in the following charts:



Most of the people interviewed also answered that they do read the nutritional label. Regardless, there is still a huge percentage of them that do not read labels. In order to know which is the main reason why people do not do so they were asked, in case of saying no in the previous question. As shown in the following chart, more than half of them answered that they do not read nutritional labelling either because they do not understand the meaning of some of the information gathered in them or because they do not have the time to do it.





These people were also asked how they thought this process could be improved and, as shown in the previous chart, more than half of the people that answered this question stated that they think this activity would be improved if there would exist any tool that could help them compare between products.

Observing the previous results, it is appreciated that an 53% of the people believe that a comparison tool would be a good option to choose between food products in a more efficient way when making the purchase, so that, as a last experiment and in order to verify the real acceptance that the use of a mobile application would have among the population enter the use of a mobile application, an application prototype has been developed.

Click on the following link to see the prototype: <https://youtu.be/3cgceQvd8rl>

In order to be able to measure the acceptance of the prototype shown, people were asked to sign up for the newsletter to be able to notify them when the application is ready. In this way, the company could have a record of people really interested in the application. Thus, after showing it to 60 people, 47 people subscribed to the newsletter, having therefore an 78.3 % of people interested.

## Validated hypotheses

Finally, after analysing the results obtained from the previous experiments, the validated hypotheses and, therefore, those that confirm the viability of the project are the following:

- Consumers do not compare food labelling due to lack of time and/or because they do not understand it.
- Using a food comparator that provides all the necessary nutritional information about the products in a more visual and simple way to understand and that allows to compare from home the different brands of each product existing in the market, the population will make better decisions when making the purchase improving their health and without having to check in situ the features of each product, which will result in a time saver.

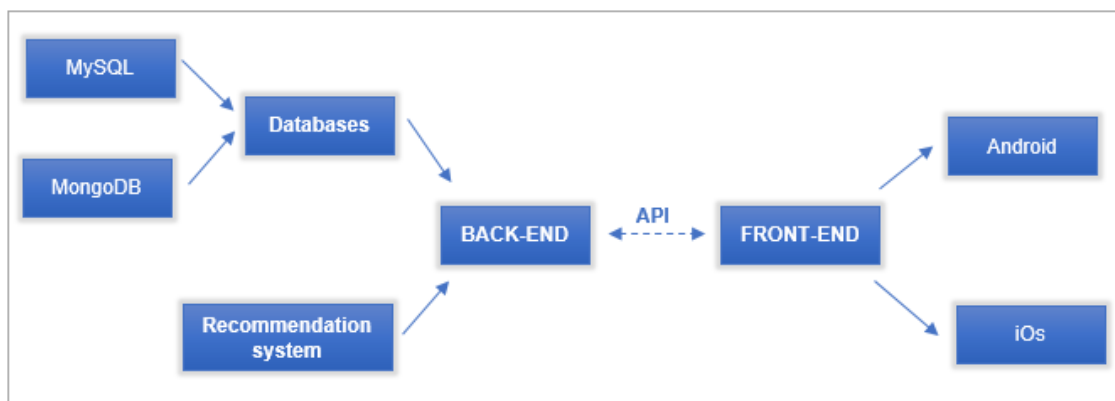
- The team will have the help of a nutritionist to reports on the most important aspects to consider when analysing the nutritional information. There will also be a section in the application where the nutritionist will write post weekly about nutrition.
- People will be interested in using a mobile application such as Carrot, The Healthiest Comparator.

Likewise, the hypothesis that there is not necessary to move to eat healthy as the users can make the purchase directly from the application and receive it at home has been ruled out since it has not been possible to reach an agreement with a distribution company.

### 3.1.2 Development of the application and the database

Carrot App will be developed for iOS and Android. Carrot’s systems will be composed of the following systems.

- Front-end of the app could be developed in Swift for iOS platform, and in Java for Android platform. This would be the best way to do it in terms of performance, but programming in this native way is more expensive and slower. Instead Carrot App will use AppCelerator which is written in JavaScript, and almost run natively on both platforms, so it performs well even being the same app for iOS and Android.
- AppCelerator also can be used to design the API which connects front-end with back-end. Doing it in a single way for the both platforms in order to be consistent and to avoid problems.
- Back-end will be composed of databases and a recommendation system.
  - Databases will use the best of the two worlds, SQL and NoSQL. SQL performs well with OLTP requests, simple queries with a high volume of transitions. This system will be used for the web page using WordPress and also to storage the users’ database, which is composed of all the information of the users of the App.
  - NoSQL like MongoDB is a new technology which allows to storage the information using JSON format, which is well known and popular. It allows to storage information with high variate in its data, that’s why it will be used to storage the information of the products.
  - A recommendation system will be developed using algorithms in order to determine which products fits better with user’s requirements.



Carrot App technology scheme.

Carrot App development team will follow a DevOps methodology, which aim is to improve software product delivery by reducing the time between development and deployment.



DevOps follows a Design, Code, Test, Deploy structure. This allows to code in an agile way saving development time.

Using GitLab as a coding project platform, working with their auto DevOps technology that allows developers to test their code easier and faster.

Another advantage of using AppCelerator is that they also offer an Analytics service, which would provide statistics and information about users' habits and preferences.

Database information will be initially gathered using MyFitnessPal API, with a previous register in their developer programme which grants access to the API services. Also, as another source of information Open Food Facts is a non-profit project developed by thousands of volunteers from around the world, their products database is made by everyone, for everyone. About completing the products database, Open Food Facts as an open-source community, public their apps code in GitHub. Thus, it would be possible to fork their Scanner Products App in order to build an App for Carrot that uses the camera and OCR to scan the barcodes of the products and also their nutritional facts.

This products database is key for the success of the App, having a consistent database with high quality data is a very positive factor for the success of the company.

### 3.1.3 Promotion of the application

Once the application is fully developed, it will be promoted through different channels with the aim of reaching different segments of population:

- On the one hand, advertising agreements will be established with Instagram influencers, specifically three advertising campaigns per year will be hired with three “instagrammers” dedicated to the fitness:
  - Vikikacosta → publication of two post, one in the first trimester of the year and other in the last.
  - Patriciamg31 → publication of one post in the second trimester of the year.
  - Amaya\_fitness → publication of one post in the third trimester of the year.
  - The objective of this campaign is to reach people interested in the fitness world and who pay attention to the food they eat by comparing between different brands and supermarkets.
- Annual promotion of the application assembling two stands for one week, one in a supermarket of half influx and other in one of large influx. For such promotion, the stands will have tablets where users can interact with the application and check its functionality.
- The goal of this advertising action is to get to different segments of the population at the same time. Among them people who, without being on social networks, do have a smartphone or tablet with internet access.

- Finally, it will be attended with a stand at GYM FACTORY, the fitness and sports facilities fair held in Madrid. The main objective of attending a fair of these characteristics is to find business partners.
- It has been decided to carry out this marketing action only in the fourth year in order to show potential partners a sufficiently solid product.

## 3.2 Marketing plan

Every day more and more people's interest in improving their health is bigger and the technology is the main weapon we have to access to all of this information. Developed apps containing this kind of information are increasing each year not only in number but also in terms of diversity. Regardless of the main objective of them, that would be improving people's health, there are lots of kind of apps such as calorie counters, personal trainers, or even tools to make health information more accessible for all.

One of the pillars to enjoy good health is to have a balanced diet and free of substances that may harm our organism from the inside. The interest to abandon the use of ultra-processed food and start consuming those that have not been processed with harming chemicals is increasing but, in some occasions, packaged products tags are not sufficiently clear for everyone. In addition to this, it has been detected that nutrition-related illnesses are increasing all over the world, causing, consequently, that people are more aware of what they eat.

Different reports, as Grocery Eye published in 2015 or the annual one by Ingredion, show that 80% of surveyed people considered that it was important to recognize the ingredients appearing in the tag of their food and drinks and, at the same time, they also appreciate the fact that this list is as short as simple as possible.

For all these reasons, from Carrot, it has been decided that this wish must fulfilled so everyone could know what they are eating and change, this way, their feeding habits.

### 3.2.1 The brand

#### The application

CarrotApp was born at the EOI Business School in Madrid, where a group of 6 young entrepreneurs joined to develop an app that would make easier the selection of high-quality food products for consumers. This tool wants to help users to choose their grocery shopping lists taking into accounts their dietetics needs in a personalized way by comparing products from the same category. It also wants to be offered the possibility of having the information about what any of this options mean, for example: what the carbohydrates are and which the different types we can find in a tag are.

In addition to comparing products, what CarrotApp will give to the users are:

- A direct connection to a nutritionist expert that would give some advice and help regarding any doubts they may have.
- Healthy Diet Club: a forum where people can share experiences and opinions with the community
- A newsletter they can sign in in case they want to be updated with the latest news, events, and changes included in the app.



The objective is that not only digital natives but everyone, even those not used to use technology, can be benefited from the information contained in Carrot by designing a simple, intuitive and easy-to-use interface.

## The logo

The fact of choosing a carrot as both name and logo for our brand is looking for making a room in the market catching the attention of people wanting to be healthier. The carrot's smile wants to transmit positivity and happiness experimented while having a healthier lifestyle. If you eat well, you feel better, and, consequently, your optimism levels will also improve. Another important factor was the colour selection. Those were chosen in a way that, due to its striking tones, will attract the attention of customers.

### 3.2.2 Research and marketing planning preparation

With the objective of getting to know the market where the app wants to be introduced, a PESTEL (political, economic, sociocultural, technological, environmental and legal) and SWOT (strengths, weaknesses, opportunities and threats) analysis were conducted.

#### PESTEL analysis

A strategic research is carried out with this analysis of different factors:

- **Political:** Government politics from the Ministry of Agriculture, Fishing, Food, and Environment (MAPAMA, for its acronym in Spanish) promote ecological, and additives-free agriculture. One example of this is the “Collaboration PLAN for the improvement on the composition of food and beverages and other measures 2017-2020”. What this plan want is to achieve is the reduction of added sugars, salt, and saturated fats so Spain’s population can have a more balanced high-quality diet to benefit their health and prevent different diseases. There are also different campaigns trying to maximize the impact on pregnant women and babies (“Gracias por esos 1000 primeros días”).
- **Economic:** big retailing companies, like Carrefour or Mercadona, could be potential competitors among them due to their bio-products lines. This competition could be positive for the project as the growth of this new tendency would mean that people are more interested in consuming this kind of food and an application that would help them choose the best product among all would be useful for them.
- **Sociocultural:** healthy lifestyle and balanced and healthy diet are in. Every day more collectives are adding up to this movement and make it public. The implementation of a tool that eases this way of life can be, then, beneficial for our business. In addition to this, the recent conflict rises up regarding slaughterhouses and farms can increase eco-produced meat. Moreover, different studies prove that having a healthy diet can help improve school performance of kids or sports performance. Also, eating disorders are increasing in our societies due to different factor and an application that may help choosing the healthiest products could be a tool for those people suffering this kind of illnesses to overcome their problems.

- **Technological:** the digital market is at its peak and lots of parts of our daily lives depend on technology. In this 2.0-world we are living and where the opinion of others is more and more considered when making decisions, an app that would offer forums that tackle different topics as important as food is today will be a useful mechanism. A study carried by Deloitte (“Estudio de Consumo Móvil en España”) states that 94% of the people interviewed used their smartphones in the 24 hours previous to that question. In addition to this, Spanish Government, in 2016, launched a plan to digitalize Spanish society (“Plan Digital 2020”) to increase digitalization by a 10% that would increase by a 40% the GDP growth rate. Fitness bands use increased by a 11% from 2015 to 2017, says the same study by Deloitte. This means that people is, in fact, taking more care about their health.
- **Environment:** the increasing tendency of consuming healthy, vegan, or ecological products has an effect on the need for using a product comparator with the aim of choosing or discarding items in the user's grocery shopping list. This company, moreover, does not generate waste due to its direct action.
- **Legislation:** products are already selected regarding the current market legislation. The comparator proposes different healthy and nutritionally suitable requirements of each user.

## SWOT analysis

This analysis, on the other hand, analyses the company from its internal (strengths and weaknesses for the success of the global or specific goals) and external (threats and opportunities derived from the micro and macro environment) characteristics point of view.

INTERNAL FACTORS	
STRENGTHS (+)	WEAKNESSES (-)
<ul style="list-style-type: none"> <li>• Promotions and offers for new customers</li> <li>• Recipes and nutrition advices related to the products selected</li> </ul>	<ul style="list-style-type: none"> <li>• No client portfolio</li> <li>• Low budget and low investment on advertising during the first years</li> <li>• Lack of experience</li> </ul>
EXTERNAL FACTORS	
OPPORTUNITIES (+)	THREATS (-)
<ul style="list-style-type: none"> <li>• No competitors in the Spanish market right now</li> <li>• Fitness sector would use this business model as a working tool</li> <li>• Really helpful for vegans, vegetarians, and organic products consumers</li> </ul>	<ul style="list-style-type: none"> <li>• Other emerging apps doing similar things</li> <li>• Instagrammers and fitness bloggers doing their own recommendations</li> <li>• Lack of continuity using the application and maintaining a balanced diet due to lack of money or motivation.</li> </ul>

To try to overcome, on the one hand, the weaknesses, the strategy to be followed is to start creating a network to announce the application and try to find people that can help the team improving their expertise. This, little by little, will create a client portfolio that would grow thanks to our performance and the name Carrot is going to make for itself. On the other hand, the threats, will be overcome by educating people about nutrition, making them realize that a healthy diet does not have to be, necessarily, more expensive and that only professionals should be giving advices about nutrition and dieting.

### 3.2.3 Positioning

As it was already said, there are different apps with similar functions as the ones CarrotApp offers such as calorie counters. The main difference between CarrotApp and the other services available is that, in the latter, the possibility of having a classification of the products regarding their nutritional facts does not exist. As most of the nutritionist and dieticians point out, the number of calories being higher or lower is not a synonym of health. For this reason, an application just like this, unavailable in this country's market could position CarrotApp in a privileged place concerning other tools. It was found other application which characteristics are more similar to what this application offers but it is only available in the French market. Yuka, the name of this app, is about to reach 2 million downloads in less than a year and a half. This is a supporting fact for CarrotApp as this success could be extrapolated to our reality.

As it could be demonstrated in the carried interviews with people from different places and ages by this team, two of the main factors that would help this service escalate are, on the one hand, the lack of comprehension of product tags and, on the other hand, the lack of basic knowledge about nutrition. Those factors combined lead consumers to make bad decisions when writing grocery shopping lists.

The easy use of CarrotApp and the personalized experience are the variables that will make the difference and those thanks to users will choose this service instead of others with similar characteristics.

Yuka is a French application that allows you to scan your products and analyse their impact in the users' health. Yuka decodes for the user the labels: allows the reader to visualize the products that are good and the best to avoid. Currently has more than one million downloads for Android, is in version 1.87 (updated July 12, 2018). It is in the Top Ten of free applications and has 9000 ratings that score with a 4,5 over 5).

MyFitnessPal is an application that compares foods (not products). Instead CarrotApp, which is not a mere calorie counter, made with a general database by users, but it takes into account a wide variety of processed, which are the most frequent foods in the shopping list. With processed usually the user has less information than with fresh food.

### 3.2.4 Pricing policy

When a competitive price wants to be determined, taking into account the ones established by the competition, it is important to have certain differentiation always trying to maintain a benefit margin that would allow the company to grow in a constant pace and improve its services. The kind of apps Carrot is being compared with are those calorie counters mentioned before. The most important one is MyFitnessPal. In the premium app, it offers different services such as personalized settings regarding

macronutrients and calories, and exporting data to an Excel sheet but none of the options found are related with ingredients and additives. The monthly price for this premium option is 9.99 € and, the annual one, 49.99 €.

For this reason, with the aim of adjusting the prices to those already in the market, it was decided not to get paid when downloading the app but giving the chance of subscribing a premium option where the user can enjoy other services. This price would include not only the possibility of finding the best option and creating a grocery shopping list that would make easier the trip to the supermarket for the user, but also the option of getting access to the Healthy Diet Club and the nutritionist's advice section. Those would have a trimester price of 4,99 € or an annual price of 14,99 €. This last offer would save the user 4,97 €, annually.

### 3.2.5 Distribution policy

As CarrotApp is a technological service all purchases are going to be done through application stores in smartphones and tablets, such as Apple Store and Google Play. This fact is key for the enterprise as it is not necessary for it to have physical stores to sell the product. Likewise, it does not either require stock or distribution logistics. All of it implies a huge reduction of costs.

### 3.2.6 Communication policy

The objectives that are intended to be communicated to customers with communication activities are clear: healthy lifestyle, health, and well-being.

The public wanted to reach are those people that, in one way or another, are concerned about their health and well-being either because of prevention or because they are suffering illnesses whereby they need to take care of what they eat and improve their nutritional habits. Regarding advertising different actions are encompassed in our strategy:

- **Stands** in conventions of the food sector, or promoting a healthy lifestyle, such as the fitness convention Gym Factory in Madrid, and also in supermarkets where another market segment, not necessarily sports people, wants to be reached, such as people over 40 years old.
- A **web page** where all the information about the latest updates and the product offered. Moreover, it will be used by customers and the company to have a direct relationship with each other.
- Advertising through **influencers** in the fitness sector and healthy food.

As it was mentioned before, both the name and the logo of the business want to symbolize, through a carrot, a healthy lifestyle. All the creation process of the application it is going to be carried out by programming on computers in our headquarters using the help of mobile application developers and nutrition experts that would give their professional advice about what kind of information and advice should be included to be given to the users. The financial planning will be detailed later in this report.

### 3.2.7 Sales planning. Sales argument

Customer support and incidents and complaints resolution will be carried out through an email address or phone call that will be made available once the application will be out in the market.

From the application, users will have access to a forum where anyone that is using it will be able to read blog posts about recipes, questions, and recommended products, as well as post them themselves. The objective of it is to manage and increase customers' loyalty to our app.

The satisfaction of the users regarding the service will be measured through comments and score received through selected distribution channels, and the calls and emails received with incidents, complaints and, also, improvement suggestions and greeting.

*Using this application, you will no longer have to lose time going down the supermarket looking for the most suitable products for your diet. In addition to this, you will be able to understand which the meaning of the ingredients is contained in the food you are eating.*

## 3.3 Finance Plan

### 3.3.1 Annual accounts

	Year 0	Year 1	Year 2	Year 3	Year 4
<b>A) Non-current assets</b>	<b>11.279</b>	<b>8.699</b>	<b>6.120</b>	<b>3.540</b>	<b>960</b>
<b>I. Intangible immobilized</b>	<b>3.379</b>	<b>2.534</b>	<b>1.690</b>	<b>845</b>	<b>0</b>
Computer applications	3.379	2.534	1.690	845	0
<b>II. Material immobilizations</b>	<b>7.900</b>	<b>6.165</b>	<b>4.430</b>	<b>2.695</b>	<b>960</b>
Technical installations and other material immobilized	7.900	6.165	4.430	2.695	960
<b>III. Real state investments</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>IV. Long-term investments in group companies and associat</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>V. Long-term financial investments</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>VI. Deferred tax assets</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>B) Current assets</b>	<b>2.531</b>	<b>40.000</b>	<b>170.000</b>	<b>456.308</b>	<b>842.768</b>
<b>I. Non-current assets maintained for sale</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>II. Stock</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>III. Commercial debtors and other accounts receivable</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>IV. Short-term investments in group companies and associa</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>V. Short-term financial investments</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>VI. Short-term accruals</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>VII. Cash and other equivalent liquid assets</b>	<b>2.531</b>	<b>40.000</b>	<b>170.000</b>	<b>456.308</b>	<b>842.768</b>
Liquid assets	2.531	40.000	170.000	456.308	842.768
<b>TOTAL ASSETS</b>	<b>13.810</b>	<b>48.699</b>	<b>176.120</b>	<b>459.848</b>	<b>843.728</b>

	Year 0	Year 1	Year 2	Year 3	Year 4
<b>A) Net worth</b>	<b>13.810</b>	<b>-2.114</b>	<b>111.692</b>	<b>331.539</b>	<b>607.663</b>
<b>A-1) Own funds</b>	<b>13.810</b>	<b>-2.114</b>	<b>111.692</b>	<b>331.539</b>	<b>607.663</b>
<b>I. Capital</b>	<b>15.000</b>	<b>15.000</b>	<b>15.000</b>	<b>15.000</b>	<b>15.000</b>
Deeded capital	15.000	15.000	15.000	15.000	15.000
<b>II. Emission premium</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>III. Reservations</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3.000</b>	<b>3.000</b>
Legal and statutory	0	0	0	3.000	3.000
<b>IV. (Own actions and participations in patrimony)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>V. Previous exercises results</b>	<b>0</b>	<b>-1.190</b>	<b>-17.114</b>	<b>0</b>	<b>0</b>
(Negative results from previous exercises)	0	-1.190	-17.114	0	0
<b>VI. Other partner contributions</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>VII. Result of the exercise</b>	<b>-1.190</b>	<b>-15.924</b>	<b>113.806</b>	<b>313.539</b>	<b>589.663</b>
<b>VIII (Dividend on account)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>IX. Other net worth instruments</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>A-2) Adjustments by change of value</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>I. Financial assets available for sale</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>II. Coverage operations</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>III. Others</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>A-3) Grants, donations and legacies received</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>B) Non-current liabilities</b>	<b>0</b>	<b>30.813</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>I. Long-term provisions</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>II. Long-term debts</b>	<b>0</b>	<b>30.813</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>III. Long-term debts with group companies and assc</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>IV. Deferred tax liabilities</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>V. Long-term accruals</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>C) Current liabilities</b>	<b>0</b>	<b>20.000</b>	<b>64.427</b>	<b>128.309</b>	<b>236.066</b>
<b>I. Liabilities linked to non-current assets held for sa</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>II. Short-term provisions</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>III. Short-term debts</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>IV. Short-term debts with group companies and assc</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>V. Commercial creditors and other accounts payabl</b>	<b>0</b>	<b>20.000</b>	<b>64.427</b>	<b>128.309</b>	<b>236.066</b>
Different creditors	0	20.000	32.196	23.795	39.512
Other debts with the public administrations	0	0	32.231	104.513	196.554
<b>VI. Short-term accruals</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>TOTAL NET WORTH AND LIABILITIES</b>	<b>13.810</b>	<b>48.699</b>	<b>176.119</b>	<b>459.848</b>	<b>843.729</b>

	Year 0	Year 1	Year 2	Year 3	Year 4
<b>A) CONTINUED OPERATIONS</b>					
1. Net amount of the turnover	0	48.957	220.848	495.034	867.707
2. Variation of stocks of finished products and in the process of manufacturing	0	0	0	0	0
3. Work done by the company for its asset	0	0	0	0	0
4. Supplies	0	0	0	0	0
5. Other operating income	0	0	0	0	0
6. Personnel expenses	0	-57.300	-58.446	-59.030	-60.801
7. Other operating expenses	-1.190	-5.001	-13.785	-15.371	-18.109
a) External services	0	-5.001	-13.785	-15.371	-18.109
b) Taxes	-1.190	0	0	0	0
8. Amortization of fixed assets	0	-2.580	-2.580	-2.580	-2.580
9. Imputation of subsidies of non-financial fixed assets and other	0	0	0	0	0
10. Excesses of supplies	0	0	0	0	0
11. Deterioration and result by disposals of the fixed assets	0	0	0	0	0
12. Negative difference of business combinations	0	0	0	0	0
13. Other results	0	0	0	0	0
<b>A.1) Operating result (1+2+3+4+5+6+7+8+9+10+11+12+13)</b>	<b>-1.190</b>	<b>-15.924</b>	<b>146.037</b>	<b>418.053</b>	<b>786.217</b>
<b>A.2) Financial result (14+15+16+17+18+19)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>A.3) Result before taxes</b>	<b>-1.190</b>	<b>-15.924</b>	<b>146.037</b>	<b>418.053</b>	<b>786.217</b>
20. Taxes on profits	0	0	-32.231	-104.513	-196.554
<b>A.4) Result of the exercise from continued operations (A.3+20)</b>	<b>-1.190</b>	<b>-15.924</b>	<b>113.806</b>	<b>313.539</b>	<b>589.663</b>



In order to maintain a balance between current assets (CA) and current liabilities (CL), it has been decided to maintain the following relation:

Relation CL/CA	Year 1	Year 2	Year 3	Year 4
	50 %	38 %	28 %	28 %

To make this possible, in the year 1, part of the debt will be paid in long-term. This will only happen in the first year because from year 2 the company will already have enough benefits to be able to face the debts with short-term creditors.

In addition to this, it should be noted that from year 2, the company will proceed to make the following apportionment of benefits:

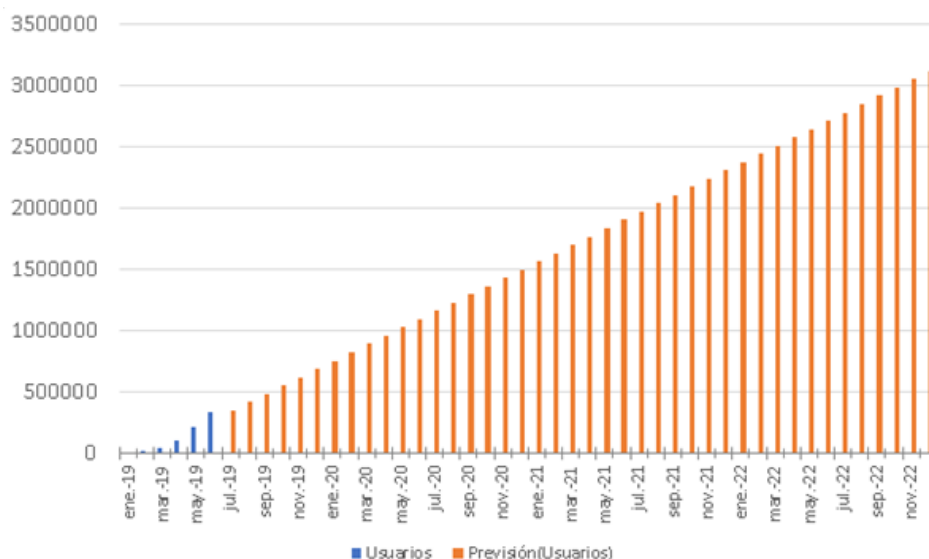
	Year 2	Year 3	Year 4
<b>Results</b>	<b>113.806</b>	<b>313.539</b>	<b>589.663</b>
<b>Legal reserve</b>	<b>3.000</b>	<b>0</b>	<b>0</b>
<b>Negative results from previous exercises</b>	<b>17.114</b>	<b>0</b>	<b>0</b>
<b>Dividend to pay</b>	<b>93.692</b>	<b>313.539</b>	<b>589.663</b>

In order to distribute the benefits, it is necessary to provide 10% of the benefits as a legal reserve until reaching 20% of the share capital, in this case, 3.000 €.

### 3.3.2 Income evolution

In this section, it will be determined the evolution of revenues for the CarrotApp business model. For this, the first thing that will have to be seen will be the evolution of users that will be had.

For the evolution of users, this planning is mainly based on estimates of the evolution of new companies related to applications; and more specifically, on the evolution of the Yuka application in France, taking into account the differences between both applications. With all this, the estimated evolution of our users over the first four years is, using a linear regression from the growth in the first months, as shown in the following figure:



As it is showed, it is expected to reach something about 750.000 users after the first year, and about 3 million after four years; although these values may fluctuate once the application is introduced in the market. According to this number of users, the income estimates will be made during these years.

The main means of income will be through advertising and through the payment of the premium version of the app. But first it is necessary to estimate how many users will be using the free version and the premium version.

For this, it was started with information from other similar applications, reaching the conclusions shown in the following tables:

<b>Users Distribution</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>
<i>Free version</i>	99%	98%	97%	96%
<i>Premium Version</i>	1%	2%	3%	4%
<i>Quarterly Payment</i>	100%	100%	85%	70%
<i>Annual Payment</i>	-	-	15%	30%

With all this information, the analysis of the revenue for each of the two versions and, consequently, for advertising or for payment of users can be started.

## Advertising incomes

The first form of income will be advertising revenue, a series of variables must be estimated so its evolution can be determined:

- **Cost per thousand (CPM):** The cost per thousand is a commonly used measure in advertising. Radios, television, newspapers, magazines and online advertising can be purchased based on how much it costs showing the add to a thousand viewers. In this case, it would be the price that would cost companies to show their advertising to 1000 users through CarrotApp. Based on the market and information on similar and related applications, it was estimated a cost per thousand of 0.01€ at the beginning and about 0.05€ after four years, bearing in mind that having an advertising company will take a while since the launch of the app.
- **Impressions per user or day:** Another important issue that it will have to be addressed will be the number of views that the app's advertising will have, since the revenues will depend directly on the visits of the free version. In this case, it was estimated that users, on average, will use the app about twice a week.
- **Number of companies:** The next topic to be discussed will be the number of advertising companies that CarrotApp will have. This data was based on information available about other apps. The conclusion is that CarrotApp will have about six companies showing their advertising through it at the end of the fourth year. **Percentage of free users:** Finally, the remaining data needed was already shown previously; and is the percentage of users who will use the free version versus the premium version.

From all this information, a table was elaborated to visualize the income obtained each year. The table is shown below:

Month	Users	Users forecast	Cost per thousand	Impressions per user/day	Free percentage	Unit Income	Number of companies	Incomes	Total per year
Jan-19	0		0,01	0,2857	0,995	0	0	0	
Feb-19	5.000		0,01	0,2857	0,995	0,4264	0	0	
Mar-19	40.000		0,01	0,2857	0,995	3,4114	0	0	
Apr-19	100.000		0,01	0,2857	0,995	8,5286	0	0	
May-19	220.000		0,01	0,2857	0,995	18,7629	1	10,76	
Jun-19	331.000		0,01	0,2857	0,995	28,2295	1	28,33	
Jul-19		352.000	0,01	0,2857	0,995	30,0206	1	30,02	
Ago-19		419.429	0,01	0,2857	0,995	35,7712	1	35,77	
Sept-19		486.857	0,01	0,2857	0,995	41,5219	1	41,52	
Oct-19		554.286	0,01	0,2857	0,995	47,2726	2	94,55	
Nov-19		621.714	0,02	0,2857	0,995	106,0466	2	212,09	
Dec-19		689.142	0,02	0,2857	0,995	117,5480	3	352,64	813,59
Jan-20		756.571	0,02	0,2857	0,99	128,4009	3	385,20	
Feb-20		824.000	0,02	0,2857	0,99	139,8445	3	419,53	
Mar-20		891.428	0,02	0,2857	0,99	151,2881	3	453,86	
Apr-20		958.857	0,02	0,2857	0,99	162,7317	3	488,20	
May-20		1.026.285	0,02	0,2857	0,99	174,1753	3	522,53	
Jun-20		1.093.714	0,03	0,2857	0,99	278,4284	4	1113,71	

<b>Jul-20</b>		1.161.142	0,03	0,2857	0,99	295,5937	4	1182,38	
<b>Ago-20</b>		1.220.571	0,03	0,2857	0,99	312,7591	4	1251,04	
<b>Sept-20</b>		1.296.000	0,03	0,2857	0,99	329,9245	4	1319,70	
<b>Oct-20</b>		1.363.428	0,03	0,2857	0,99	347,0899	4	1388,36	
<b>Nov-20</b>		1.430.857	0,03	0,2857	0,99	364,2553	4	1457,02	
<b>Dec-20</b>		1.490.205	0,03	0,2857	0,99	301,4207	4	1526,68	11.507,21
<b>Jan-21</b>		1.565.714	0,03	0,2857	0,985	396,5730	4	1654,61	
<b>Feb-21</b>		1.633.142	0,03	0,2857	0,985	413,6517	4	1722,92	
<b>Mar-21</b>		1.700.571	0,03	0,2857	0,985	430,7304	4	1791,24	
<b>Apr-21</b>		1.768.000	0,03	0,2857	0,985	447,0091	4	1859,55	
<b>May-21</b>		1.835.428	0,03	0,2857	0,985	464,8878	4	1927,87	
<b>Jun-21</b>		1.902.857	0,03	0,2857	0,985	481,9665	4	1996,18	
<b>Jul-21</b>		1.970.205	0,03	0,2857	0,985	499,0452	4	2064,50	
<b>Ago-21</b>		2.037.714	0,03	0,2857	0,985	516,1239	4	3554,68	
<b>Sept-21</b>		2.105.142	0,04	0,2857	0,985	710,9368	5	3668,54	
<b>Oct-21</b>		2.172.571	0,04	0,2857	0,985	733,7084	5	3782,40	
<b>Nov-21</b>		2.240.000	0,04	0,2857	0,985	756,4832	5	3896,26	
<b>Dec-21</b>		2.307.428	0,04	0,2857	0,985	779,2515	5	3989,76	29.505,04
<b>Jan-22</b>		2.374.857	0,04	0,2857	0,98	797,9523	5	4103,04	

<b>Feb-22</b>		2.442.285	0,04	0,2857	0,98	820,6083	5	4216,32	
<b>Mar-22</b>		2.509.714	0,04	0,2857	0,98	843,2643	5	4329,60	
<b>Apr-22</b>		2.577.142	0,04	0,2857	0,98	865,9246	5	4442,88	
<b>May-22</b>		2.644.571	0,04	0,2857	0,98	888,5761	5	4556,16	
<b>Jun-22</b>		2.712.000	0,04	0,2857	0,98	911,2325	5	4669,44	
<b>Jul-22</b>		2.779.420	0,04	0,2857	0,98	933	5	4782,72	
<b>Ago-22</b>		2.846.857	0,04	0,2857	0,98	956,5443	5	4396,00	
<b>Sept-22</b>		2.914.285	0,04	0,2857	0,98	979,2364	5	5009,28	
<b>Oct-22</b>		2.981.714	0,04	0,2857	0,98	1001,8564	5	5122,56	
<b>Nov-22</b>		3.049.142	0,04	0,2857	0,98	1024,5127	5	7853,76	
<b>Dec-22</b>		3.116.571	0,05	0,2857	0,98	1308,9623	6		61.867,78

As it can be seen, the forecast is that the first year the advertising revenues will be 815 €; the second, 11.500€; the third, 29.500€; and the last year, 61.870€.

## Premium version incomes

This income will be due to the direct payment of the users, through Google Play or the Apple Store, when downloading the premium version of our application. There are two options for payment of the app:

- A first option of quarterly payment for 4,99€, the user will be able to enjoy the premium version for three months.
- A second option of annual payment for 14,99 €, the user will have access to the premium version for one year; obtaining a reduction of approximately 25% on the price of payment per quarter.

As mentioned before, the evolution of premium users is estimated linear during the four years, going from 0.5% the first year to 2% of the total users the last.

As seen in the free and premium user estimation table, it is expected that the first two years all users will be only paying for the quarterly option. The reason for this is that will need to test the application to be sure to pay it in the long term. From the third year on, annual subscribers will appear but despite this, quarterly subscriptions will continue to be higher as many users will continue to start using the app for the first time. In conclusion, by the end of the fourth year 70% of premium users will have a quarterly subscription and 30% per year.

Once mentioned the income, it is also important to bear in mind that, when selling the app through the applications of download of Google and Apple, these companies will remain a percentage of the income obtained for the downloads as support expenses.

With all this, the total revenue due to advertising and the premium version are summarized in the following table:

	Year 1	Year 2	Year 3	Year 4
<i>Advertising revenue</i>	814 €	11.507 €	29.505 €	61.868 €
<i>Income per sale app</i>	48.144 €	209.341 €	465.529 €	805.839 €
<i>Quarterly Payment</i>	68.776 €	299.058 €	582.218 €	870.895 €
<i>Annual Payment</i>	-	-	77.824 €	280.304 €
<i>Payment Google or Apple Store</i>	-20.633 €	-89.717 €	-199.512 €	-345.360 €
<b>TOTAL INCOMES</b>	<b>48.957 €</b>	<b>220.848 €</b>	<b>495.034 €</b>	<b>867.707 €</b>

As it can also be seen, the main evolution of income is through the premium version, which goes from giving an income of approximately 48.000€ to 800.000€ in the fourth year. On the other hand, advertising revenues also increase considerably due to the inclusion of new companies in the project.

Next step will be to analyse the expenses to determine the future viability of our company.

### 3.3.3 Expenses evolution

Regarding to the expenses that will be incurred during the operation of the business, it will be necessary to distinguish between the costs of setting up the company and operating expenses of the business. The financial plan presented in this project is extended up to four years after the launch of CarrotApp, therefore, the operating expenses will be according to this period of time. On the other hand, the costs of setting up a company will only be taken into account at the initial moment of formation of the company.

To determine the **costs of setting up the company**, the legal procedure established by Spanish legislation for the formation of a limited company has been followed. This model of mercantile society has been chosen because it is the one that best adapts the requirements of the business. Under this type of company, the liability of each of the partners is limited according to the capital contributed, thus avoiding having to respond with personal assets before the debts that are generated. Likewise, it allows having the partners perfectly identified and involved in a project with the intention of permanence, while having a more flexible legal regime than public limited companies. The following table shows the constitution expenses that would be incurred in the initial moment, an instant that has subsequently been called zero year.

<b>Constitution expenses Limited Company</b>	<b>Year 0</b>
<i>Checking company name in the Central Commercial Register</i>	16 €
<i>Notary Fees</i>	291 €
<i>Company registration in the Commercial Registry Madrid</i>	189 €
<i>Fees employment law services: constitution Limited Company</i>	400 €
<i>Register trademark</i>	144 €
<i>Presentation model 347</i>	150 €
<b>TOTAL</b>	<b>1.190 €</b>

On the other hand, so that the project is visible to as many people as possible and, following the marketing plan established in this document, Carrot will have advertising expenses that will be commensurate with the volume of users that it is intended to reach. The means of promotion and dissemination of this project will be three mainly: presence in fitness fairs, promotion through prominent people of the healthy sphere (influencers) and, likewise, stands in supermarkets of medium and large affluence. The following table details the expenses related to each one of the promotion channels of the Carrot brand

#### **Advertising expenses**

<b>Fitness Trade Show in Madrid</b>	
<i>Inscription</i>	360 €
<i>Full Stand of 5 m<sup>2</sup></i>	800 €
<i>IVA (10%)</i>	116 €
<i>Insurance</i>	76 €
<i>Logo next to data</i>	339 €

<b>Subtotal 1</b>	<b>1.691 €</b>
<b>Influencers</b>	
<i>Vikiacosta (543.000 followers)</i>	5.430 € (2 post/year)
<i>Amaya fitness (250.000 followers)</i>	2.000 € (1post/year)
<i>Patriciamg31</i>	570 € (1 post/year)
<b>Subtotal 2</b>	<b>8.000 € (4 post/year)</b>
<b>Supermarkets</b>	
<i>Stand for a week in supermarket of medium affluence</i>	600 €
<i>Stand for a week in supermarket of great affluence</i>	1.200 €
<b>Subtotal 3</b>	<b>1.800 €</b>

Later, once the expenses that the company will have are detailed, it will show the way in which the advertising expenses will be allocated in time, which will evolve proportionally to the number of users that have the Carrot application.

Another of the important expenses to be met is the cost of goods and equipment, that is, the cost related to tangible and intangible assets. As intangible assets, the cost of the computer applications that will be offered in the market must be considered. On the other hand, as tangible assets, all equipment and furniture necessary for the normal development of the company's activities must be taken into account.

CAPEX	Year 0	Annual Amortization
<b>Intangible Assets</b>		
<i>Computer applications</i>	3.379 €	845 €
<b>Subtotal 1</b>	<b>3.379 €</b>	<b>845 €</b>
<b>Immobilized material</b>		
<i>Furniture</i>	1.600 €	160 €
<i>Equipment for information process (4 units medium quality)</i>	3.600 €	900 €
<i>Equipment for information process (4 units lower quality)</i>	2.400 €	600 €
<i>Equipment for information process (printer)</i>	300 €	75
<b>Subtotal 2</b>	<b>7.900 €</b>	<b>1.735 €</b>
<b>TOTAL</b>	<b>11.279 €</b>	<b>2.580 €</b>

According to the information shown above, the investment in fixed assets, both tangible and intangible, will be made at the initial moment of constitution of the company. Subsequently, depreciation percentages were assigned to the fixed assets items. In all cases, the criterion of allocating 25% annual depreciation for all the fixed assets was



considered, except for the section of furniture to which a 10% annual amortization was assigned.

Once the costs of setting up the company, the expenses related to the promotion and diffusion of Carrot and, in the last case, the expenses due to the investment in fixed assets have been detailed, the next step will be to know the operating expenses of Carrot for four years after its launch in the market.

To update the evolution of the costs that are going to be paid in the future, the Consumer Price Index (CPI) has been used, with the annual CPI percentages shown in the following table. It is considered that at the time of this project the prices and expenses shown in the document correspond to year 1.

	Year 2	Year 3	Year 4
CPI	2 %	1 %	3 %

Thus, the operating expenses of the Carrot business for the four years following its launch are those shown in the following table:

Operating Expenses	Year 1	Year 2	Year 3	Year 4
<b>(1) Leases and fees</b>	<b>1.080 €</b>	<b>1.102 €</b>	<b>1.113 €</b>	<b>1.146 €</b>
<b>(2) Professional services</b>				
<i>Tax consultant, accounting, presentation of quarterly and annual liquidations of the company</i>	<b>1.320 €</b>	<b>1.346 €</b>	<b>1.360 €</b>	<b>1.401 €</b>
<b>(3) Supplies</b>	<b>1.000 €</b>	<b>1.020 €</b>	<b>1.030 €</b>	<b>1.061 €</b>
<b>(4) Advertising</b>	<b>600 €</b>	<b>8.600 €</b>	<b>9.200 €</b>	<b>10.891 €</b>
<i>Fitness Trade show</i>	-	-	-	1.691 €
<i>Supermarket stand promotion</i>	600,00 €	600 €	1.200 €	1.200 €
<i>Promotion through influencers</i>	-	8.000 €	8.000 €	8.000 €
<b>(5) Other services</b>	<b>1.001 €</b>	<b>1.717 €</b>	<b>2.668 €</b>	<b>3.610 €</b>
<i>Google Cloud</i>	521 €	1.235 €	2.186 €	3.124 €
<i>Online stores (App Store)</i>	83 €	85 €	86 €	89 €
<i>Online stores (Google Play)</i>	21 €	22 €	22 €	22 €
<b>(6) Wages and salaries</b>	<b>57.300 €</b>	<b>58.446 €</b>	<b>59.030 €</b>	<b>60.801 €</b>
<i>App Developers</i>	52.500 €	53.550 €	54.086 €	55.708 €
<i>Nutritionist</i>	4.800 €	4.896 €	4.945 €	5.093 €
<b>TOTAL</b>	<b>62.301 €</b>	<b>72.231 €</b>	<b>74.401 €</b>	<b>78.910 €</b>

It has been estimated that two people will be responsible for developing the application. Each of them has been assigned a gross salary of 26.250 €/year in 14 payments. Salary that will be updated as the CPI value does.

Regarding the cost of the digital infrastructure system, Google Cloud, in order to be able to estimate how much would be needed, examples of successful business cases from Google Cloud have been taken in account as references.

Although, this is an initial estimation, considering that more resources will be needed proportionally to the number of total users.

First year, or at least until development of the app is finished. Estimation is that two Compute Engines (or instances) would be needed, one dedicated only for the webpage server, and the other one for testing purposes. This way the webpage would be always available, allowing developers to perform their tests in an independent instance.

These instances are low tier type, because users haven't arrived yet, so the number of requests would be very low.

Compute Engine	
1 x Web Server	1 x Tests Server
730 total hours per month	730 total hours per month
VM class: regular	VM class: regular
Instance type: g1-small	Instance type: n1-standard-1
Region: Belgium	Region: Belgium
<a href="#">Sustained Use Discount</a> : 30%	<a href="#">Sustained Use Discount</a> : 30%
<a href="#">Effective Hourly Rate</a> : EUR 0.017	<a href="#">Effective Hourly Rate</a> : EUR 0.032
Estimated Component Cost: EUR 12.58 per 1 month	Estimated Component Cost: EUR 23.08 per 1 month
Cloud Storage	
Belgium	
Regional storage: 30 GB	
EUR 0.52	
<b>Total Estimated Cost: EUR 36.17 per 1 month</b>	

So, estimated cost for the development period would be 36,17 € per month. Also, as an extra saving, the testing instance could be powered off when it's unused. Once the app is finished, and the product is ready to be launched, the cloud scheme would be modified. Higher tier instances are selected, since the system would have a larger number of requests with a growing number of users using the app. Three instances would be needed, again one dedicated only to the webpage and support services, in order to be able to be in contact with the clients in case of failures of the app instances. For the app two instances would be needed, these instances are more powerful than the webpage instance, because these instances are key for running the app services. One instance is dedicated for the databases, MongoDB and MySQL, its consider essential to have one instance fully dedicated to this task, since a high number of queries per active user is expected, so it is necessary a good performance.

Second instance would be in charge of the recommendation systems, deciding which products suits better the client requirements.

These two instances compose the back-end of the app.

Compute Engine	
1 x Web Server	1 x Recommendation system
730 total hours per month	730 total hours per month
VM class: regular	VM class: regular
Instance type: n1-standard-1	Instance type: n1-standard-2
Region: Belgium	Region: Belgium
<a href="#">Sustained Use Discount</a> : 30%	<a href="#">Sustained Use Discount</a> : 30%
<a href="#">Effective Hourly Rate</a> : EUR 0.032	<a href="#">Effective Hourly Rate</a> : EUR 0.063
Estimated Component Cost: EUR 23.08 per 1 month	Estimated Component Cost: EUR 46.16 per 1 month
1 x Databases	Cloud Storage
730 total hours per month	Belgium
VM class: regular	Regional storage: 100 GB
Instance type: n1-standard-2	EUR 1.73
Region: Belgium	<b>Total Estimated Cost: EUR 117.12 per 1 month</b>
<a href="#">Sustained Use Discount</a> : 30%	
<a href="#">Effective Hourly Rate</a> : EUR 0.063	
Estimated Component Cost: EUR 46.16 per 1 month	

Since, the instances would be running every day, a 30% discount for sustained use is applied. So, total estimated cost for these months would be 117,12€ per month.

Once our number of users have growth, higher tier instances would be needed, depending on the performance maybe is needed to move to a distributed architecture with lower tier instances. But in this estimation, its considered that it would be enough with better instances.

Compute Engine	
1 x Servidor web	1 x Sistemas recomendación
730 total hours per month	730 total hours per month
VM class: regular	VM class: regular
Instance type: n1-standard-1	Instance type: n1-standard-4
Region: Belgium	Region: Belgium
<a href="#">Sustained Use Discount</a> : 30%	<a href="#">Sustained Use Discount</a> : 30%
<a href="#">Effective Hourly Rate</a> : EUR 0.032	<a href="#">Effective Hourly Rate</a> : EUR 0.126
Estimated Component Cost: EUR 23.08 per 1 month	Estimated Component Cost: EUR 92.31 per 1 month
1 x Bases de datos	<b>Cloud Storage</b> Belgium Regional storage: 300 GB EUR 5.18 <b>Total Estimated Cost: EUR 212.89 per 1 month</b>
730 total hours per month	
VM class: regular	
Instance type: n1-standard-4	
Region: Belgium	
<a href="#">Sustained Use Discount</a> : 30%	
<a href="#">Effective Hourly Rate</a> : EUR 0.126	
Estimated Component Cost: EUR 92.31 per 1 month	

So, total estimated cost for these months would be 212,89 € per month.

If the app is even more successful and the number of users keep growing, it would be interesting to consider using Google App Engine, Cloud SQL and Datastore (NoSQL), instead of Compute Engines. These systems are more reliable and scalable, but they are more expensive, thus they only worth it the app have a really big number of users. Also, trying to make a cost estimation with this architecture is almost impossible until the app is developed, because it depends a lot in how the app system is designed. Also, it would be interesting to consider applying to the start-ups program of Google Cloud, in which they offer free credits and support.

### 3.3.4 Financial Analysis of the project

For the financial analysis, it has been assumed that the projected economic income is before financing, it means, interest payments, loan payments or dividends will not be included, so the Free Cash Flow will be used (FCF from now on).

To estimate the FCF, the indirect flow estimation method has been used, comprising the following:

$$FCF_i = NOPLAT_i + AMORTIZATION_i - CAPEX_i - \Delta WC_i \text{ being:}$$

- **NOPLAT (Net Operative Profit Less Adjusted Taxes):** profit after taxes but before interests from period i since, in the estimation of FCF, the way to finance the project has not yet been defined (own financing or granting a loan) so the financial expenses are not known. It should also be noted that the value of the corporation tax calculated within the NOPLAT, is the one that would pay the company in case of no financial expenses so, it must be considered that, if the

company has financial debts for the grant of a loan, the calculations made would not coincide with the real value of the tax

- **Amortization:** accounting expense that does not imply payment to third parties. The only effect it has on the calculation of the FCF is the fiscal because, although it is subtracted from EBITDA to calculate the NOPLAT, then it is added.
- **CAPEX (capital expenditures):** investment in fixed assets (immobilized both material and intangible) made in the period i. Since it is an important payment that is not included in the profit and loss account as an expense, to calculate the FCF, it is subtracted.
- **Variation of the working capital:** considering the working capital as the difference between current active and passive current, the variation of this fund is an adjustment oriented to eliminate uncollected incomes and unpaid expenses, both in cash, within the NOPLAT. In this project, the working capital is estimated by subtracting to the current active the current passive. The following table shows the percentages of the working capital with respect to revenues:

Year 1	Year 2	Year 3	Year 4
41 %	48 %	66 %	97 %

The fact that the percentages are not the 100% is because some payments will be made the next year.

	<i><b>Year 0</b></i>	<i><b>Year 1</b></i>	<i><b>Year 2</b></i>	<i><b>Year 3</b></i>	<i><b>Year 4</b></i>
<i><b>Sales</b></i>	-	48.957	220.848	495.034	867.707
<i><b>Operating expenses</b></i>	-	(62.301)	(72.231)	(74.401)	(78.910)
<i><b>Constitution costs</b></i>	(1.190)	-	-	-	-
<i><b>EBITDA</b></i>	(1.190)	(13.344)	148.617	420.633	788.797
<i><b>Amortization</b></i>	-	(2.580)	(2.580)	(2.580)	(2.580)
<i><b>EBIT</b></i>	(1.190)	(15.924)	146.037	418.053	786.217
<i><b>Taxes</b></i>	-	-	(32.231)	(104.513)	(196.554)
<i><b>Tax shield</b></i>	298	4.278			
<i><b>NOPLAT</b></i>	(1.190)	(15.924)	113.806	313.540	589.663
<i><b>Depreciation</b></i>	-	2.580	2.580	2.580	2.580
<i><b>CAPEX</b></i>	(11.279)	-	-	-	-
<i><b>ΔWorking Capital</b></i>	-	(20.000)	(85.573)	(222.426)	(514.769)
<i><b>FCF</b></i>	<b>(12.470)</b>	<b>(33.344)</b>	<b>30.813</b>	<b>93.693</b>	<b>77.474</b>

Although the company's financial analysis has been carried out for a four-year activity period, a year 0 of constitution is included, which will be implicit in the expenses derived from this.

As established in the current legislation, the companies of new creation as the one exhibited in this project, taxed 15% for the first tax period in which they obtain a positive taxable base and the following one. From the third year, taxation depends on the autonomous community in which file the company's tax address, paying the companies based in the Community of Madrid 25% of their profits to the corporate tax.

However, in order to carry out a more conservative financial analysis, it has been decided to calculate the corporate tax on the basis of a taxation of 25% annual.

When a company suffers losses, a credit is generated in favour called tax shield so that, the first year that the company gains after such loss, the amount of the corporation tax to be paid is reduced with this tax shield. Thus, as can be seen in the previous table of estimation of FCF, both in the year 0 and in the first year of activity, the payment of the corporation tax is not contemplated being the negative EBIT, accumulating the company a tax shield of 4.278 € that is subtracted from the year 2 taxes so that, instead of paying 36.509 € corresponding to 25% of the year 2 EBIT (146.037€), it would be paid 32.231 €.

With the purpose of determining the period of time that the project takes to recover the investment made, it has proceeded to calculate the conventional pay-back as a measure of liquidity. Thus, based on the FCF obtained, a pay-back of 2 years and 2 months is estimated.

After determining the FCF of the investment, the feasibility analysis of the project would continue with the determination of the minimum profitability by which investors would be willing to invest in what is determined as capital cost (K)

$$\text{Where } K = r_F + P = 11,91 \%$$

being:

- $r_F$ : profitability of the risk-free asset normally assimilated to the profitability of the public bond to 10 years. Currently, 1,406 %
- $P$ : risk premium associated with the investment project carried out. It has been estimated at 10,5 %.

Using the capital cost (K) previously calculated, a Net Present Value (NPV) of 98.599 € would be obtained which indicates that the project is viable.

Since the Internal Rate of Return (IRR) is the discount rate that makes the NPV is 0, for this project, the IRR is 84,80 % being greater than the capital cost, so it is confirmed that the project is viable.

However, and since all investments carry a risk implicit in the projection of FCF made since in no case the projected numbers for the future are 100% reliable. In order to measure and manage the investment risk in this project, a sensitivity analysis has been carried out with the variable "users" as variable with great impact on the outcome of the analysis.

To conclude the financial analysis, are shown below the FCF obtained in the pessimistic scenario by modifying the selected variable so that the first year of the project, Carrot only reaches approximately 40% of the users that Yuka achieved in its first year.

With the purpose of determining the period of time that the project takes to recover the investment made, it has proceeded to calculate the conventional pay-back as a measure of liquidity. Thus, based on the FCF obtained, a pay-back of 3 years and 10 months is estimated.

	<b>Year 0</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>
<b>Sales</b>	-	29.374	132.509	297.020	520.624
<b>Operating expenses</b>	-	(62.301)	(72.231)	(74.401)	(78.910)
<b>Constitution costs</b>	(1.190)	-	-	-	-
<b>EBITDA</b>	(1.190)	(32.927)	60.278	222.619	441.714
<b>Amortization</b>	-	(2.580)	(2.580)	(2.580)	(2.580)
<b>EBIT</b>	(1.190)	(35.506)	57.698	220.039	439.135
<b>Taxes</b>	-	-	(5.250)	(55.010)	(109.784)
<b>Tax shield</b>	298	9.174			
<b>NOPLAT</b>	(1.190)	(35.506)	52.448	165.029	329.351
<b>Depreciation</b>	-	2.580	2.580	2.580	2.580
<b>CAPEX</b>	(11.279)	-	-	-	-
<b>ΔWorking Capital</b>	-	(12.000)	(51.344)	(133.456)	(308.861)
<b>FCF</b>	<b>(12.470)</b>	<b>(44.927)</b>	<b>3.684</b>	<b>34.154</b>	<b>23.069</b>



## 4 Bibliography and Web Resources

- Blanch, D. 2016. Agile Coaching Tip: What Is an Empathy Map?. Solutions IQ.ONLINE MAGAZINE [<https://www.solutionsiq.com/resource/blog-post/what-is-an-empathy-map/>]
- <http://www.marketingteacher.com/value-proposition-canvas> [consulted 20/06/2018]

## 5 Appendix

### 5.1 First survey

1. Gender?
  - Male
  - Female
  
2. In what age range are you located?
  - 18-25 years
  - 26-35 years
  - 36-50 years
  - 51-65 years
  - + 65 years
  
3. Do you take care for your diet?
  - Yes, I take care of my diet
  - No, I am not very attentive to my diet
  
4. What kind of diet do you follow?
  - Vegan/vegetarian/organic food consumer
  - Another type of diet
  
5. If you are vegan/vegetarian or consumer of food, do you notice food labelling in order to discard food non-vegan/vegetarian/vegan/organic food?
  - Yes
  - No
  
6. Do you look the nutritional labelling of the groceries you buy?
  - Yes
  - No

If the answer is no, why not?

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Do you miss some kind of nutritional information? Which one?

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7. When you go to the supermarket, do you compare between two food of the same type, but of different brand?
  - Yes
  - No

8. What are your priorities or on what are you based on when choosing a brand over another?

---

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Do you think there would be any formula that would allow for a more efficient comparison?

- Yes
- No

If the answer is affirmative, what would it be?

---

---

If the answer is no, why not?

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9. When making the purchase, how many supermarkets do you attend?

- None
- 1
- 2
- 3
- 4 or more

10. What are these supermarkets?

---

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11. How much time do you devote to choosing the products you buy?

---

12. Do you go to some kind of nutritionist?

- Yes
- No

If the answer is yes, how often?

- Once a day
- Once a week
- Every two weeks
- Once a month

13. Do you prefer quality or price when choosing a product?

- Quality
- Price

## 5.2 Second survey

1. Do you look the nutritional labelling of the groceries do you buy?
  - Yes
  - No
  
2. If the answer is no, why not? Choose one of the next options:
  - I have no time
  - I do not understand the labelling
  - Others