Escuela de organización industrial

# MARKETING ANALYTICS CO.


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# 1. EXECUTIVE SUMMARY

Marketing analytics is a start-up created for 6 six post-graduate student, who want to develop their knowledge about business administration and big data, in a different way. We are specialise in the touristic sector and more specifically we work with little hotels and apartments that offers something different to the client. Our mission is to help our clients with the development of marketing campaigns and go directly to their costumer.

## 1.1. SERVICE PORTFOLIO

Our services are based on obtaining and using the data already present in the company, along with those from other sources, so that all the potential information is collected and allow us to give support to the management in the decision-making process.

We have a wide variety of services in order to offer the most appropriate and adjusted solution to each client, grouped into two main branches: Marketing Analytics and AI Services. In both, professionals in business management, marketing and advanced analytics technologies work side by side using the technologies that will change the world of business.

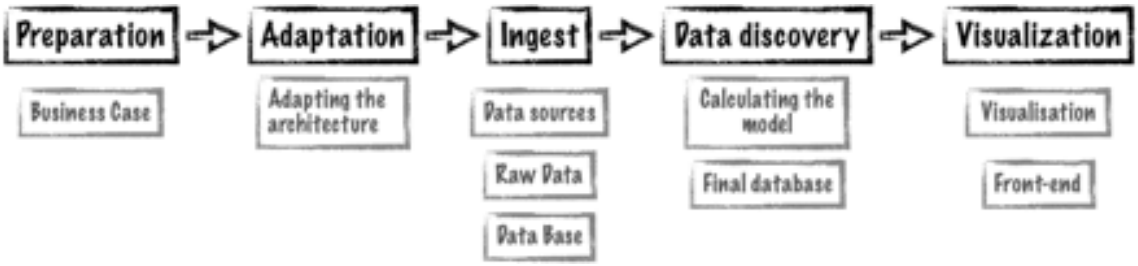
Within the first group, the most typical services of a Marketing agency are included, with the addition of Big Data tools such as Machine Learning or Geographic Information Systems (GIS) to enhance the efficiency of our solutions. In the second group, solutions are aimed at customer experience improvement and cost reduction in customer advising via web or phone. Our proposal gives the possibility to include a chatbot and/or a partially or fully automated call center in your system, subsequently collecting statistics and data derived from the use of these services for its improvement.

Afterwards a presentation of the results in dashboards or reports is made, along with a personalized recommendation from our marketing experts. These visualizations are available online at any time, place and device, so that decision-making is easier and more convenient for the costumer.

## 1.2. OPERATIONS

| BUSINESS CASE | PROBLEM SOLVING |
|---|---|
| Company analysis | Competitors |
| Requirement | Communication channels |
| Costumer | Costumer experience |
| Actual marketing channels | |
| **CLIENT GOALS** | **DATA DRIVEN RESEARCH** |
| Higher market share | Client data base analysis |
| Brand image | Open data for the case |
| To reduce marketing expenses | Data base setup |
| **MARKETING PLAN** | **CUSTOMER SERVICE** |
| New markets | Launch new plans |
| Communication plan | Apply methodologies |
| Costumer journey | Long term plan |

The process is designed to build up a final marketing plan, based in all the estimations and data analysis. Marketing Analytics has the main purpose to deliver the best costumer experience to our clients. The department structure has been designed for seeking the goal of add value to our client.




## 1.3. MARKETING

The main purpose of the implementation of this Marketing Plan is to set the foundation in terms of customer target, current competitors and communication strategies, aligned with the Operations and Finance Plan, in order to succeed within the business of Data Analytics.

The Marketing Plan included in the project will provide the following sections:

*Customer segmentation*

Through the customer segmentation of Marketing Analytics Co., it will be defined in detail the target chosen for the business. We will focus on the Hotel industry, as it generates a huge amount of data that can be managed through Big Data and Data Analysis tools.

*Competitors' analysis*

In this part, we have developed a market research, in order to identify our main competitors in the Data Analysis industry, taking into account size, customers, pricing of their services and position in the market, to have a better understanding of our potential competitors.

*SWOT analysis*

In this section, we have implemented a SWOT analysis, identifying our potential strengths, weaknesses, opportunities and threats.

| Strengths | Weaknesses | Opportunities | Threats |
|---|---|---|---|
| Knowledge | Low experience | New companies | GDPR |
| Low operation cost | Limited resources | Digital world | Security |
| Flexible portfolio | Relations competitors-market | New buyers' | Technology imitation |
| Differentiation | Engagement | Big Data | Competitors |
| Languages | | Small hotels trend | |

## 1.4. FINANCES

The initial investment for our company will be composed by 26.224€ of non-current assets (Laptops and software) and 10.000€ of cash that will be placed by potential investors.The Cost of Capital is about 8,59% (sources from Damodaran), it is a bit above the average in Spain.

| | |
|---|---|
| Levered Beta | 1,17 |
| Risk free Rate | 1,13 % |
| E Market Risk Premium | 7,27 % |
| Cost of Capital | 8,59 % |

| | Methods of valuation |
|---|---|
| Net Present value | 43.583,17 € |
| IRR | 35,67 % |
| IRR modified | - |
| Payback | 2,58 years |

The time that is required to recover the initial investment is 2,58 years, with a IRR of 39,56% and a NPV of 43.583,17€.

| | Years | | | | | | |
|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | Total |
| **Revenues** | | 74000 | 99000 | 149000 | 181.000 | 214000 | 717000 |
| Cost of Good Solds | | 14855,61 | 19807,48 | 29711,22 | 36313,7133 | 42916,2067 | 143604,23 |
| **Gross Margin** | 0 | 59144,39 | 79192,52 | 119288,78 | 144686,287 | 171083,793 | 573395,77 |
| Other expenses | | | | | | | 0 |
| Salaries | | 45000 | 60000 | 96000 | 116000 | 144000 | 461000 |
| **EBITDA** | 0 | 14144,39 | 19192,52 | 23288,78 | 28686,2867 | 27083,7933 | 112395,77 |
| Amortization | | 5012,886 | 5012,886 | 5012,886 | 5012,886 | 5012,886 | 25064,43 |
| Depreciation | | 480 | 480 | 640 | 640 | 640 | 2880 |
| **EBIT** | 0 | 8651,504 | 13699,634 | 17635,894 | 23033,4007 | 21430,9073 | 84451,34 |
| Interest | | | | | | | 0 |
| **EBT** | 0 | 8651,504 | 13699,634 | 17635,894 | 23033,4007 | 21430,9073 | 84451,34 |
| Taxes | | 1297,7256 | 2054,9451 | 4408,9735 | 5758,35017 | 5593,09209 | 19113,0865 |
| **Net income** | 0 | 7353,7784 | 11644,6889 | 13226,9205 | 17275,0505 | 15837,8152 | 65338,2535 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Net Income** | 0 | 7353,7784 | 11644,6889 | 13226,9205 | 17275,0505 | 15837,8152 | 65338,2535 |
| Amortization | | 5012,886 | 5012,886 | 5012,886 | 5012,886 | 5012,886 | 25064,43 |
| Depreciation | | 480 | 480 | 640 | 640 | 640 | 2880 |
| Change in Working Capital | | | | | | | 0 |
| CAPEX | 1200 | | | 800 | | | 2000 |
| **Free Cash Flow** | -1200 | 12846,6644 | 17137,5749 | 18079,8065 | 22927,9365 | 21490,7012 | 91282,6835 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Free CF equity** | -37464,43 | 12846,6644 | 17137,5749 | 18079,8065 | 22927,9365 | 21490,7012 | 91282,6835 |

The growth that we have used for the estimations in around 20% each year.

# 2. VALIDATION

After several interviews with directors and hotel workers in different parts of the national geography, we came to the conclusion that there is a need in the field of data management tools, since they do not have one and they would be willing to pay for this service and outsource it. With it, they hope to cover the hotels internal and external management needs.

These are the interviews we made for our validation phase that added more value to us.

## INTERVIEW #1

**Hotel manager 5 * in Madrid, Spanish firm (200 employees)**

*Q- The first thing I want to ask you is, how do you estimate the number of people who will come to your hotel.*

A- Well after many years in this business, let's say that experience is the way in which we estimate the number of people that will come.

*Q- That is not a very "scientific" method.*

A- Yes, of course, but it is what we have until a new one is presented. Many times we get it right, but obviously, there are many times that we do not.

*Q- What is the worst of not guessing correctly?*

A- First of all, we lose money. If we fix an expensive fee for the rooms, we do not fill the hotel it and we do not cover costs and if we put it too cheap we fill it but we do not earn all the money we could.

*Q- Has it ever happened to you that you have filled it and were not ready?*

A- Yes, too many times. Having staff ready to deal with punctual demand peaks is difficult. You can extend and improve the service to a point, there comes a time when increasing the staff is not possible. Not so much because of the resources available for hiring, but because that staff must be trained, giving protocol rules, active treatment of the hotel, is difficult.

*Q- How would you see the availability of tools that will help you improve both the degree of occupation and the demand for different products available at the hotel?*

A- It's something that the truth, "you have" but its use is very limited, any alternative that is more focused on our needs we would buy it. We do not need so much that someone does "the calculations" for us, what we need is a tool that could be adapted to our needs

*Q - And regarding the customer experience?*

A - I have worked in other firms, with a high profile and I can tell you that one of the things that most need all, is the provision of information that allows them to know the customer, in our case it is vital because they pay a lot of money for our service and they expect in many cases that we get ahead of their needs. That is difficult and requires a lot of personnel, any help that allows us, on the one hand, to improve the service and, on the other hand, to reduce the cost. We are sure that we want to acquire it.

*Q - Therefore, would you hire a service that would allow you to improve the customer experience and improve the estimates?*

A - Yes, as always, depend on money.

*Q - Would you be willing to pay 50000 euros a year?*

A - I would be willing if I could pay something less and dispose of it for a while to prove it.

*Q - And if I say that the flexibility of this tool allows you to initially develop the tool and have it for a few months and if it convinces you to have more time. What would you think?*

A - That in fact would be very interested to have it

.

## INTERVIEW #2

**Hotel manager 5 * in Madrid, Spanish firm (150 employees)**

*Q- The first thing I wanted to ask you is, what tools do you currently have to know your client better?*

A- At present, we do not have any very clear method, we are guided by the experience and at most by segmentation guides provided by the company.

*Q- There is, therefore, no methodical and well-founded procedure for knowing the client.*

A- Methodical and scientific is, but until today we do not have tools that provide this knowledge of our customers.

*Q- How much would you pay to know your customers more individually?*

R- Very much (laughs). I would like to know him as well as if he were his mother. These customers are very demanding, they are charged a very expensive service and therefore expect us to treat them during their stay here better than in their own home.

*Q - The provision of tools that will make life easier for the client such as chatbot apps that allow you to order what you need without calling the front desk and on the other hand free your workload from your staff, as you see it?*

A - Without a doubt, it is a great tool, it is not so to say our main priority but, without doubt, a very useful tool.

*Q- And if I told you that in that way, you could register everything your customers ask at the hotel, categorize it, know if it was in a summer or cold season, after a game or a cultural visit, all that information that you say what you need.*

A - I think it just became my top priority. As I said.

*Q - How much would you be willing to pay?*

R - As little as possible, obviously. 30000- 40000 euros a year would not be a bad price.

## INTERVIEW #3

**Hotel manager 4* in East Coast of Spain, Spanish firm (150 employees)**

*Q- The first thing I want to ask you is, what tools do you currently have to know your client better?*

A- At present, we are guided by experience.

*Q- And you consider very important to have some kind of tool that allows you to predict what level of occupation you will have.*

A - The truth predict the level of occupation is something very important for us, this hotel closes several months a year, as our clientele fluctuates a lot, knowing the exact moment in which we could open or even adapt our staff could be a step forward to meet a certain of profitability.

*Q - What type of clientele do you have?*

A - Of all kinds, although according to what time of year a type or another predominates a lot. We have a lot of retirees and also a lot of foreigners who are retired or close to retirement.

*Q - And how are reservations made at your hotel?*

A - Mainly by tour operators, and websites like booking.

*Q - And why not book directly?*

R - Hopefully, we would remove intermediaries, the problem is that this profile usually calls a lot by phone, and our front desk staff cannot often serve you for the workload, they already have enough calls from the guests and neither we can afford to have a telephone operator just for that, besides it is difficult to find people with an English level good enough to talk fluently with our customers.

*Q - Would you say that these tasks, both those of the front desk, as those of future guests are "mechanical".*

A- Totally, 80% of the calls to reserve a room are limited to ask for availability, price, services and confirm the reservation. As for the room service, most are to order food, hotel service information or ask for a taxi.

*Q - What would you say if you knew that we have an alternative with which you could fulfill the vast majority of these calls and also save that information to improve your knowledge of your customers?*

A - With just the first you have said, would be thrilled, the second would not be bad either. But what would it be?

*Q - Well this solution will consist of a Chabot (an artificial intelligence) that would be able to answer calls and solve the most basic incidents, obviously the most complex would require a person.*

A - To me the truth with which they take off of me the simplest ones serves me. What happens is that that sure costs a lot of money. The fundamental problem is that this hotel has a high temporality and obviously I would not like to have a tool in months that do not need it.

*Q - Well and if I tell you that this tool is prepared precisely so that you pay much less for months when you do not use it, that is, you would pay mainly for use.*

A - The truth sounds pretty good, but how much would that cost me?

*Q - It is difficult to see, we have to study your case, but develop this tool for you should be about 20,000 euros, I know that it is expensive, but after maintaining it you can leave on average about 3000 euros during the high season months and practically nothing months in which there is no demand. Our preliminary studies reveal that having a similar service provided by a person costs twice the average, so in less than two years it would amortize the development.*

A - The truth is that it is an important investment, but I must admit that having something with that flexibility is quite complicated, if the solution works as well as you tell me, I would very likely be willing to acquire it.

## INTERVIEW #4

**Hotel manager 4* in Coast of Huelva, Spain (100 employees)**

*Q - Well, from what I've been seeing with colleagues of your own business, the customer experience is fundamental, even more than predicting customers or the consumption of certain products.*

A - Certainly, it is obviously the best improvement and prediction of resources in the department as food & beverage is fundamental for our business, it allows us to save a lot of money and negotiate better with suppliers, however, after all, what truly gives us the profit is the customer satisfaction.

*Q - Have you always worked at this hotel or have you also worked for a chain?*

A - I have worked for other hotel chains.

*Q - And you would say that sometimes chains that are very linked to the holiday resort when they try to open urban hotels to attract a different public have difficulty to achieve a certain level of profit.*

A - Yes, some of them have problems to adapt their way of thinking. Sometimes when you have been focused on a specific clientele for a long time, it is difficult to change the way you think and act, however, it has improved a lot.

*Q - Despite that, you think the major hotels could improve, more?*

A - Yes of course.

*Q - And what do you think is the most difficult to understand in this world?*

A - That each client is different, has different needs and that, of course, the client that goes to a holiday resort does not have the same priority as the one who goes to a hotel near the airport, or to a congress. But even the clientele within the same hotel varies a lot, you can find business people with families that are visiting a certain city.

*Q - And would you be willing to pay to know better, how to treat your customers?*

A - Of course, as I have said that is something fundamental in our business.

*Q - And would you say, that there are many marketing agencies that are involved in this sector?*

A- There are marketing agencies and some consultancies, but they focus mostly on advertising, not many care about customer experience and if we include an agency that also emphasizes data analytics techniques, I would say even less.

*Q - Well, I think with that I have mostly all I need to continue I appreciate the chance to talk with you.*

## INTERVIEW #5

**Hotel-Restaurant Oro y Luz in coast of Almeria, Spain (20 employees)**

Q- *Could you explain us a little bit about your business?*

A- Well, our *resort* is kind different regarding to the other hotels on the area. We offer a mix between natural environment respectful hotel and a high-quality restaurant that takes all the local products for our creations as much as possible. We think that we are offering to our clients a different way to do tourism in Almeria, contributing with the local development and enjoy the natural park in an environmentally friendly.

Q- *Well, do you think that your clients knows your business model in the same way or they just book because of the location?*

A- It is true that most of them have booked with us because they like our natural design and our way to understand the tourism here. But, actually, an important number of them did not know our *mission, vision and values* but they realise after to be here.

*Q- So, do you think that you can change or maybe try to show in a better way your business model to the costumers?*

A- Yes of course! It could be great if we can focus better our marketing and attack our main target, because I think that we have a huge market share (people who are environmentally friendly or just those who enjoy the environment).

*Q- How do you use or make your marketing? I mean, do you use some kind of ads on internet or some web pages, do you hire somebody to do it?*

A- Well, I did not have any *"marketing department"* but I had a model agency and I used to make some kind of marketing. But, honestly, I have paid for Google ads and I have no idea about the impact that what I did and paid in Google represent to my hotel, or even though if I made the marketing to my potential clients.

*Q- So, according to that, maybe you could need some help to manage your marketing plan and try to make a more effective marketing?*

A- Yes, I will do it if I had the security that I am going to hire a service that understand my business and could offers help to me instead of tell me what to do or how to run my business. It is interesting for off-season period, because it is known that summer hear it is easy to have a full occupation in the door. I want to get market for the medium and low season and it is not easy for me study that because I do not have the tools and the time to do it correctly.

*Q- So that is the end meeting, thanks Luisa for your time and for the help!*

A- Thanks to you, and have luck with your business!

## INTERVIEW #6

**Manager Resort 5 * Canary Islands (100 employees)**

Q - Well, first, thank you very much for your time. I would like to know how many guests and employee has your hotel.

A- Buff, I could not tell you exactly, but I think we're around 100 employees, and 20,000 guests a year, but I cannot tell for sure.

Q - They are a few.

A - If enough, there are times when you do not have time to eat.

Q - And how do you try to personalize the deal for each client?

A- At present, this effort falls on the ability of our employees to identify their needs and to try to anticipate their requirements. For this, we usually train them so that they are able to identify opportunities etc. In general in the hotels, especially in those with a high profile of clientele, there is the figure of the achiever. This person is in charge of trying to materialize the wishes of our clients when they ask us for something.

P – As I could see, you give an extreme importance to personalized treatment. And tell me, do you have any tool that allows you to study your clients on a large scale so that you can anticipate their needs without having even spent the night in one of your hotels?

A - No, moreover I think we do not even have something similar for our own clients.

Q - Would you be willing to pay for tools or services that provide such information?

A - Yes, of course.

Q - Well, besides this, I wanted to know, the hotel where you work, I suppose that due to its size and a large number of guests that have its staff have to do many repetitive tasks. For example, to assist clients to provide them with information on excursions, to manage orders, or even calls to ask or reserve a room.

A - Yes, the truth is that the front desk does not stop answering calls.

Q - What would you say if I told you that some of those tasks can be automated, even providing an app that can channel some of those requests.

A- Well, I think it would help us improve the service we provide. Obviously, the price should be taken into account.

P - Well the idea is not only to improve the customer experience, we also aspire to reduce costs, avoiding tasks that can be performed by a computer instead of a person. But also the idea behind this solution is that all the information collected can be used to improve decision-making in the hotel. The estimated cost should study varies depending on the case but could be around 20,000, 30000 euros per year, and probably over time, it would even be considerably reduced because the bulk corresponds to development costs.

A - I think it's a very good idea and could be very profitable, right now I could not tell you if in the future I would be willing to buy it because we have a lot of things on our hands, but I think you have enough market, there are many brands and hotels that would be willing to pay enough money to have information from their customers. Just one advice, try to aim higher not just the hotel when you have delivered a few projects trying to sell your solution to big companies in this business.

# 3. OPERATIONS PLAN

Marketing Analytics is a startup focused to solve the necessity and unknowledge about how to do marketing plan, how to use the data that companies have or what the open data sources offers to them. It offers a new way of making marketing for the tourism industry, focused on local and different *resorts* whose valuation is on the differentiation and a specific public.

It is for that reason because Marketing Analytics puts all the technical knowledge and encourage in every part of our portfolio.

## 3.1. VALUE CHAIN

The offering is grounded in 6 five capabilities to an effective digital marketing operation, developed to solve client problems that the actual digital markets are creating. Our capabilities include analytics, social media measurement, search engine optimization and search engine marketing. This combined set of capabilities addresses approximately 65% of a typical client's marketing operations spend.

| | Client need | Marketing Analytics Offfering |
|---|---|---|
| Analytics | I need to use data insight of identify the right messages and segments | Manpower and analytics resources to provide reporting, critical analysis, dashboards, … |
| Content | How can I create content across the appropriate platforms then vary the messaging and images to provide a personalized experience | Our team can speed up delivery and expand capacity through a factory model that is deployed after a core concept has been created |
| Campaigns | My business has to acquire new potential customers with focused efforts and engage | Support across campaign, planning, creation, programming and execution across digital channels |
| Experience | My online sites need to attract qualified costumers, I have to monitor, respond and analyze what customers are talking about | Tools and team optimize SEO, improve performance of SEM, and monitor social media |

It offers services to business which their target client is a costumer, using data analytics to bring the technology for the little companies that does not have the resources to use it.

Our buyer is a client with a business running or an entrepreneur who want to be accurate with their marketing campaign but it has not enough money and time to spend on that work

| **Business Case** | **Problem solving** |
|---|---|
| Company analysis | Competitors |
| Requirement | Communication channels |
| Buyer person | Costumer experience |
| Actual marketing channels | |

| Customer goals | Data driven research |
|---|---|
| Higher market share | Client data base analysis |
| Brand image | Open data for the case |
| To reduce marketing expenses | Data base setup |

| Marketing plan | Costumer service |
|---|---|
| New markets | Launch new plans |
| Communication plan | Apply methodologies |
| Costumer journey | Long term plan |

Marketing Analytics provides digital marketing through a service model that support the activities required to support the demands of an at scale digital marketing operations. Our service portfolio includes people, processes and technology that can close skill and capability gaps, bring scale to digital operations, and add efficiency and performance to marketing, all of that leading to better marketing outcomes for our clients.

## 3.2. PRODUCT DEVELOPMENT

From the operation point of view, Marketing Analytics uses cloud servers for running the data model and free software running it. Marketing Analytics run all these technologies using just notebooks with internet connection.

*Human resources*

| | Staff plan | | |
|---|---|---|---|
| | 2018 | 2019 | 2020 |
| CEO & CFO | 1 | 1 | 1 |
| CTO | 1 | 1 | 1 |
| CMO | 1 | 1 | 1 |
| COO | 1 | 1 | 1 |
| Data architect | 1 | 1 | 1 |
| Data scientist | 1 | 1 | 1 |

*Material resources*

Marketing Analytics is located in the EOI coworking where it is not needed to hire supply and other elements for an office. It is because of the coworking facilities, Marketing Analytics makes possible to cut the fix cost and transfer most of the cost to variable cost.

*Process*

The process is designed to build up a final marketing plan, based in all the estimations and data analysis. Marketing Analytics has the main purpose to deliver the best costumer experience to our clients. The department structure has been designed for seeking the goal of add value to our client.

*Departments*

*Finances*

Our CFO (Chief Financial Officer) has to manage the business account, takes the decisions about investment, sales models and keep our compromise with the company ethics about financial responsibility.

*Marketing*

The CMO (Chief Marketing officer) has the responsibility to design the company marketing plan and collaborate with the rest of the team with our marketing analysis for clients.

*Operations*

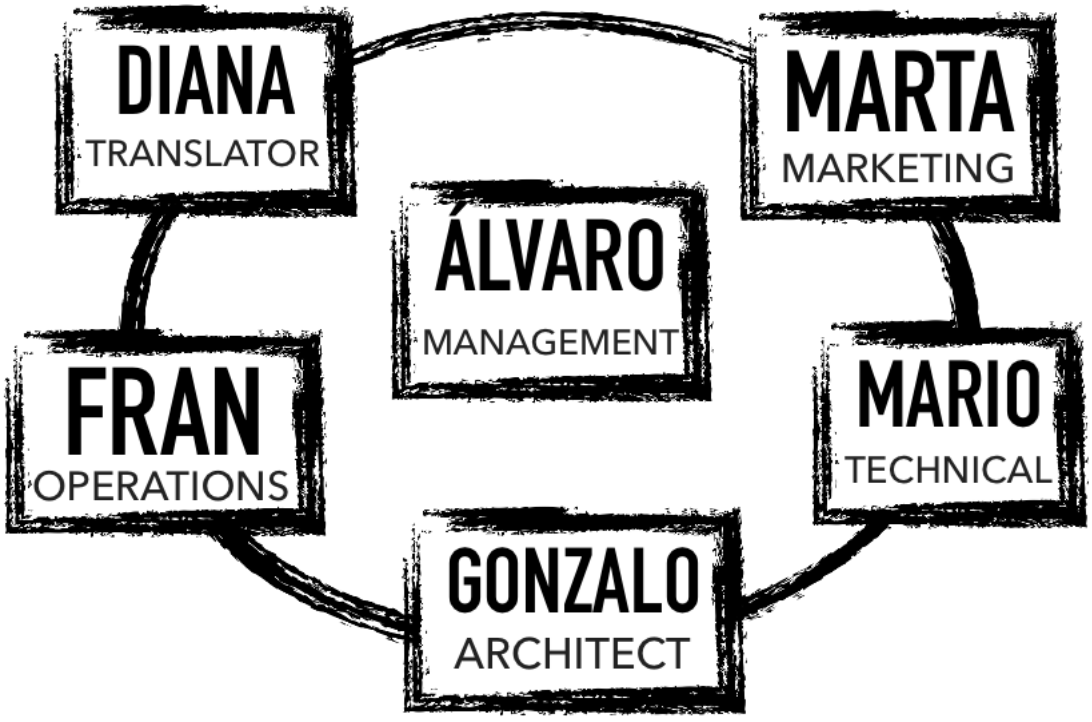
The COO (Chief Operation Officer) is the responsible of company daily problems, needs to put in common all the company goals and coordinate departments during the projects, forecasting the future projects and design the work schedule.

*Translator*

The CTO (Chief Technology Officer) has to be the joint between the technical part of the company with the marketing and operations departments. Has to print clearly all the technology for the client vision.

*Architect*

The architect is the designer of the set of tools that are going to be used on each project.



## 3.3. INTERNAL AND EXTERNAL FACTORS

***Macro-environmental factors***

| Politics | Economical | Social | Technological |
|---|---|---|---|
| Privacy law LGDP | Digital economy | Digital generation | Data lakes |
| Entrepreneurs benefits | Economical growing | Social trends | Artificial intelligent |
| Open market | Low interest rate | Privacy concern | Wearable |
| Open data | Start-ups financial support | Ecotourism | Companies data |
| Islamic terrorism | European found for rural growth | Ecological impact | Cloud services |

***Internal environment***

| Strengths | Weaknesses | Opportunities | Threats |
|---|---|---|---|
| Knowledge | Low experience | New companies | GDPR |
| Low operation cost | Limited resources | Digital world | Security |
| Flexible portfolio | Strong relations competitors-market | New buyers' person | Technology imitation |
| Differentiation | Engagement | Big Data | Competitors |
| Languages | | Small hotels trend | |

# 4. SERVICE PORTFOLIO

Currently, the world is undergoing a transformation that will change the world of business, in the course of 10 years. The ways in which business is done Automation, Big Data Intelligence are some of the sciences that have come to stay, and that allowed us to increase added value and productivity.

After the last crisis, the way in which companies interact with customers has evolved. Previously the clients directly came by themselves to acquire products or services. It was enough with simple advertising campaigns and products of an acceptable quality. However, after the last crisis the roles have changed; now we are the ones who have to go out and look for customers on the street.

It is therefore vital to differentiate not for the product but for the customer's experience throughout his path with us.

To achieve these high levels of satisfaction, we provide a series of services that will allow us to improve this perception, reduce the costs associated to provided services and increase the client portfolio and its quality, allowing a greater return of capital of those firms that have our services.

Our services are based on obtaining and using the data already present in the company, along with those from other sources, so that all the potential information is collected and allow us to give support to the management in the decision-making process. Decisions made through this method will have a higher success rate, since uncertainty is reduced as a consequence of the improvement of quantity and quality of the information available.

We have a wide variety of services in order to offer the most appropriate and adjusted solution to each client, grouped into two main branches: Marketing Analytics and AI Services. In both, professionals in business management, marketing and advanced analytics technologies work side by side using the technologies that will change the world of business.

Within the first group, the most typical services of a Marketing agency are included, with the addition of Big Data tools such as Machine Learning or Geographic Information Systems (GIS) to enhance the efficiency of our solutions. In the second group, solutions are aimed at customer experience improvement and cost reduction in customer advising via web or phone. Our proposal gives the possibility to include a chatbot and/or a partially or fully automated call center in your system, subsequently collecting statistics and data derived from the use of these services for its improvement.

Afterwards a presentation of the results in dashboards or reports is made, along with a personalized recommendation from our marketing experts. These visualizations are available online at any time, place and device, so that decision-making is easier and more convenient for the costumer.

## 4.1. MARKETING ANALYTICS

We offer all the services related to a marketing strategy, from a specific action to a long-term campaign. Our approach is based on increasing marketing effectiveness using Big Data; being able to handle and analyse more information provides more foundation and less uncertainty in the decision-taking process, resulting in a higher success rate.

Through Machine Learning algorithms it is possible to create classification models, useful for customer segmentation, or prediction ones, worthwhile to calculate the influx of people who will have our store, estimate future sales or how a change will affect to our company. These are tasks that have always been carried out but that were not possible to do them as efficiently and taking into account as many variables as with the tools provided by Big Data.

With Geographic Information Systems (GIS), all decisions related to location, such as where to open a store or where to place a billboard to reach the maximum number of target audience, are simplified through pleasant visualizations in maps.

All of these services include multiple options and technologies, so that maximum adaptability to the customer's needs is guaranteed. There's also the possibility to be done either in batch or in streaming.

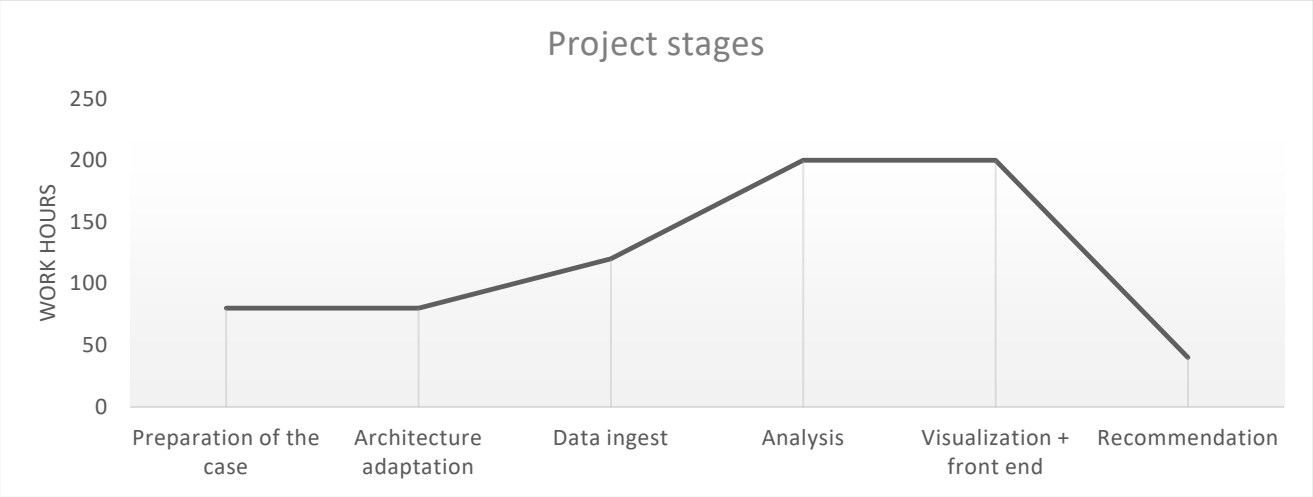
We have differentiated the projects by size, the smallest being that whose internal data of the client company does not exceed 100 GB. The medium is that which contains between 100 and 500 GB of data, and the largest would be that with more than 500 GB of information.

| Project's size | GB of information |
|---|---|
| Small | 0-100 |
| Medium | 100-500 |
| Large | >500 |

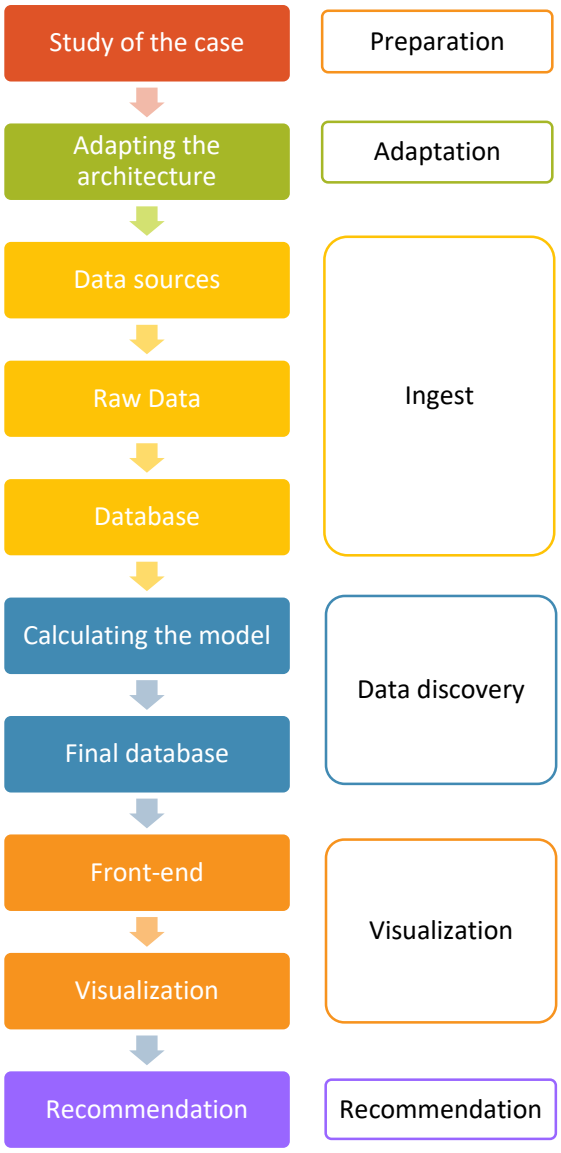
The stages of development of one of our projects and the weeks in which we have estimated that they will be carried out for each project size are the following:

| Process | Weeks | | |
|---|---|---|---|
| Project size | small | medium | large |
| 1. Preparation of the case | 0.33 | 1 | 2 |
| 2. Architecture adaptation | 0.66 | 2 | 4 |
| 3. Data ingest | 0.66 | 2 | 4 |
| 4. Analysis | 1 | 3 | 6 |
| 5. Visualization + front end | 1 | 3 | 6 |
| 6. Recommendation | 0,33 | 1 | 2 |
| **TOTAL WEEKS** | **4** | **12** | **24** |

As we can see in its graphic representation, the areas with the highest workload are also those that we consider our business core, which are the phases of analysis and visualization for the client.



### 4.1.1. ARCHITECTURE AND STAGES




The first stage of the process, the **preparation of the case**, is about talking to the customer and being able to detect their needs and know them as much as possible, so that our later work adapts perfectly to their case. This part will be carried out through meetings in the client's company, conducted by a technical person and a business person. In this stage will also determine the project's size and whether it will be carried out in streaming or batch, so that the client can have an estimation of the cost. Once the budget is accepted, the project will pass to the next stage.

In the next stage, with the information obtained in the previous step, we will proceed to **adapt the architecture** and contract the required computing power, licenses and storage in the cloud. This way, their costs, otherwise fixed, will be better adapted to what is actually consumed.

An example could be a customer who wants a basic market analysis service. For that, we would require trends and fashion data, data belonging to the company and its history, analysis of social networks, etc. The data sources would be, on the one hand, the company itself, and on the other, from open data to social networks and web pages. Once the information was obtained, it would be loaded into a database in the form of raw data. Subsequently, an ETL process would be necessary to unify the information and check its quality, so that the results are not biased for this reason. After this first treatment, the data would be dumped in another database, for further processing and analysis. This would be done through Machine Learning models in Python or R, checking the reliability of the results and providing graphic tools for the required market analysis. The results would be available to the client through a report, dashboards and / or web page.

Using the same procedure, it would be possible to make a segmentation of clients, searching for the target audience and the way to approach it, so that the investment in this area is optimal. It would only change the type of processing to be performed.

For our geomarketing service and store location, it would also be necessary to obtain the coordinates of the points of interest according to the client's requirements in case of not having them. This can be done through web scrapping or an API, such as Google Maps. Once obtained, and after an ETL process if necessary, these data would be stored in a database. This would be connected to a GIS-type service, such as QGIS (free software) or ArcGIS, to a Python script or to a Dashboard, to allow visualization by the client, either in a report or through its access to the Web page.

In the **ingest stage,** we will proceed to load in a database all the customer's data, along with those required according to customer needs from other sources, such as social networks, IoT sensors or open data sources, as raw data. That is, without making any modification in them, so we can resume the original data in case of finding any discrepancy, to make comparisons etc. Then they pass a data quality process in order to be used; they are treated to eliminate errors and blank spaces, the data from the different sources is unified, all the names are written the same way... This is important, since mistakes and subsequent biases can be avoided with this process. Once the data has been treated, it is stored in another database.

The analysis stage consists in the calculation of the Machine Learning models to obtain useful information in order to draw conclusions and give the recommendations that allow the client to know better his business and make decisions.

These algorithms are able to obtain patterns and trends overlooked in another way, create prediction models to make estimates about the future, or classification models to observe the common features of the elements of the object of study. This is useful in marketing field in tasks such as clustering and characterization of customers, sales estimation and to ponder the influence of changes in certain variables in these sales, the analysis of the seasonality that has occurred in the past and how it will be in the future, etc.

In this stage we also offer the geomarketing service, in which through geolocation we are able to recommend where to place a store or a billboard so that it has more public by being more visible, being located in an area with more people or that the composition of the population of the area is potential clientele of said business. This is done through platforms such as QGis and ArcGIS, which have a large community that allows access to layers of information, maps, images, etc.

The results are stored in a "final" database, allowing the client to access this data through the web interface or dashboards at any time of the day, any day of the week.

The models will be updated approximately once a month after the first calculation, and depending on the client's needs and choices, the calculations and their results will be updated

in real time (through streaming or near real time), or punctually each time they are calculated (once a month).

The **visualization** phase covers both the development of the web according to the requirements and needs of the client and the chosen visualization tools (dashboards, reports, maps ...). This choice also depends on the acquisition of the corresponding use licenses, both for development and for the client. The tools allow viewing from other platforms, such as mobiles or tablets, allowing their query from anywhere.

Finally, in the **recommendation** stage, it is our team who, after an exhaustive analysis of the data and the models, present the client with different solutions so that it is he who can have all the information and make the decisions. The reduction of uncertainty, together with the increase of available information, allows a higher success rate in this last step.

### 4.1.2. ESTIMATED COSTS

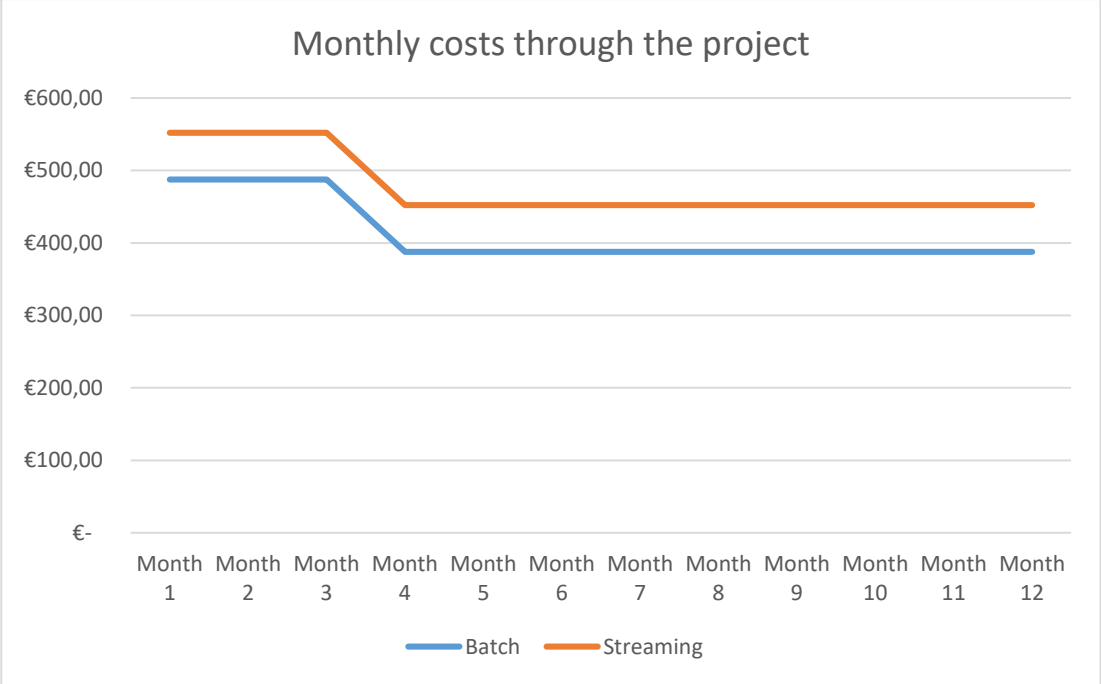
These are the estimated costs of a medium-sized batch project, without the salary costs.

| | **Launching monthly costs** (during first 3 months) | | | **Monthly maintenance** (from the 4th month on) | | | **ANNUAL TOTAL** (12 month project) | | |
|---|---|---|---|---|---|---|---|---|---|
| **Project stages** | **Units** | **Unit cost** | **Cost** | **Units** | **Unit cost** | **Cost** | **Units** | **Unit cost** | **Cost** |
| **Adapting the architecture** | | | **100,00 €** | | | **- €** | | | **300,00 €** |
| Purchase of the datasets | 1 | 100,00 € | 100,00 € | - | 100,00 € | - € | 3 | 100,00 € | 300,00 € |
| **Ingest** | | | **19,03 €** | | | **19,03 €** | | | **228,36 €** |
| EBS Storage (Raw Data) | 100 | 0,1242 € | 12,42 € | 100 | 0,1242 € | 12,42 € | 1.200 | 0,12 € | 149,04 € |
| Glasier storage (Raw Data) | 100 | 0,0040 € | 0,40 € | 100 | 0,0040 € | 0,40 € | 1.200 | 0,00 € | 4,80 € |
| EBS storage (Data warehouse) | 50 | 0,1242 € | 6,21 € | 50 | 0,1242 € | 6,21 € | 600 | 0,12 € | 74,52 € |
| **Data discovery** | | | **68,63 €** | | | **68,63 €** | | | **823,51 €** |
| ETL+ Modeling | 168 | 0,18 € | 30,02 € | 168 | 0,18 € | 30,02 € | 2.016 | 0,18 € | 360,19 € |
| Availability of the service | 720 | 0,05 € | 32,40 € | 720 | 0,05 € | 32,40 € | 8.640 | 0,05 € | 388,80 € |
| Final storage | 50 | 0,1242 € | 6,21 € | 50 | 0,1242 € | 6,21 € | 600 | 0,12 € | 74,52 € |
| **Front-end & visualization** | | | **300,00 €** | | | **300,00 €** | | | **3.600,00 €** |
| Licensing | 1 | 300,00 € | 300,00 € | 1 | 300,00 € | 300,00 € | 12 | 300,00 € | 3.600,00 € |
| | | | **487,66 €** | | | **387,66 €** | | | **4.951,87 €** |

And these are the estimated costs for a medium-sized streaming project, without the salary costs.

| | **Launching monthly costs** (during first 3 months) | | | **Monthly maintenance** (from the 4th month on) | | | **ANNUAL TOTAL** (12 month project) | | |
|---|---|---|---|---|---|---|---|---|---|
| **Project stages** | **Units** | **Unit cost** | **Cost** | **Units** | **Unit cost** | **Cost** | **Units** | **Unit cost** | **Cost** |
| **Adapting the architecture** | | | **100,00 €** | | | **- €** | | | **300,00 €** |
| Purchase of the datasets | 1 | 100,00 € | 100,00 € | - | 100,00 € | - € | 3 | 100,00 € | 300,00 € |
| **Ingest** | | | **19,03 €** | | | **19,03 €** | | | **228,36 €** |
| EBS Storage (Raw Data) | 100 | 0,1242 € | 12,42 € | 100 | 0,1242 € | 12,42 € | 1.200 | 0,12 € | 149,04 € |
| Glasier storage (Raw Data) | 100 | 0,0040 € | 0,40 € | 100 | 0,0040 € | 0,40 € | 1.200 | 0,00 € | 4,80 € |
| EBS storage (Base de datos) | 50 | 0,1242 € | 6,21 € | 50 | 0,1242 € | 6,21 € | 600 | 0,12 € | 74,52 € |
| **Data discovery** | | | **132,99 €** | | | **132,99 €** | | | **1.595,93 €** |
| ETL+ Modeling | 168 | 0,18 € | 30,02 € | 168 | 0,18 € | 30,02 € | 2.016 | 0,18 € | 360,19 € |
| Availability of the service | 720 | 0,05 € | 32,40 € | 720 | 0,05 € | 32,40 € | 8.640 | 0,05 € | 388,80 € |
| Streaming processing | 720 | 0,0894 € | 64,37 € | 720 | 0,0894 € | 64,37 € | 8.640 | 0,09 € | 772,42 € |
| Final storage | 50 | 0,1242 € | 6,21 € | 50 | 0,1242 € | 6,21 € | 600 | 0,12 € | 74,52 € |
| **Front-end & visualization** | | | **300,00 €** | | | **300,00 €** | | | **3.600,00 €** |
| Licensing | 1 | 300,00 € | 300,00 € | 1 | 300,00 € | 300,00 € | 12 | 300,00 € | 3.600,00 € |
| | | | **552,02 €** | | | **452,02 €** | | | **5.724,29 €** |

As we can see, for a medium size project, the cost decrease from the fourth month on, as the works become more maintenance-like. Most of chores are done once, in the first months of the project, and the data storage become cheaper as they are loaded to less access and expensive warehouses, the processing is not as intense as in the first time etc.



## 4.2. AI SERVICES

In this branch of business, we will provide solutions to allow our customers to automate a large part of the most routine operations, leaving the performance of said tasks to bots trained for it.

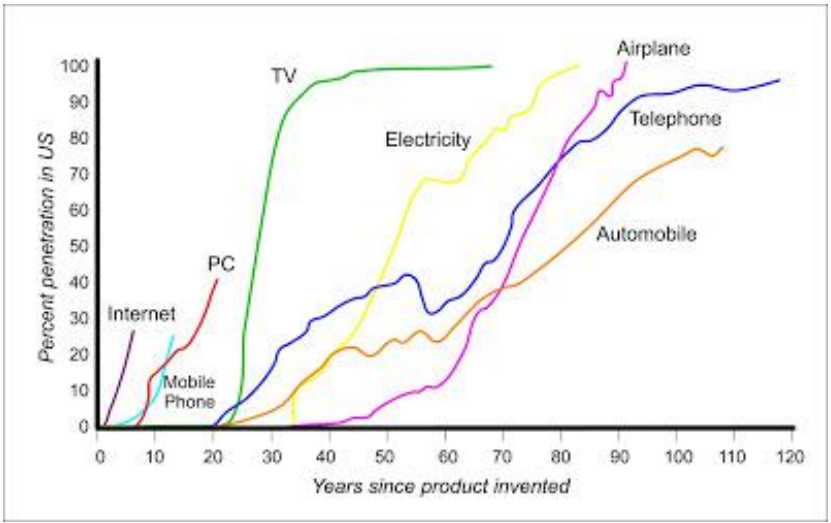
This will give a faster response to customers' demands, making possible to the company to reserve employees for more sophisticated tasks or to augment the number of interactions with the customer which generate greater added value to the company.

In our portfolio we will have an Automated Call Center service and a Chatbot Online.

### 4.2.1. CALL CENTER

To understand and visualize how a call center, in which the first filter and the resolution of simple incidents is performed by a bot, can improve the results of the firms that choose this solution, it is vital to understand the operation of a call center. To illustrate how this solution can change the way a company operates and its success, we will turn to an example of success as the automation of a process can lead a company to improve its service and increase its market share.

In the late 19th century telephone was invented and a few years later the automatic switch. However, this was not implemented systematically for telephone networks management until the 30s of the 20th century. In this period, the United States was experiencing the consequences of the economic crisis after the crisis of 29. The number of households with telephone in the United States fell sharply, that added to a high cost of the system based on manual calls switching, where telephone operators connected two numbers, pushed the telephone companies to implement automatic switching. This advance gave them enormous benefits and allowed them to democratize the use of the telephone.

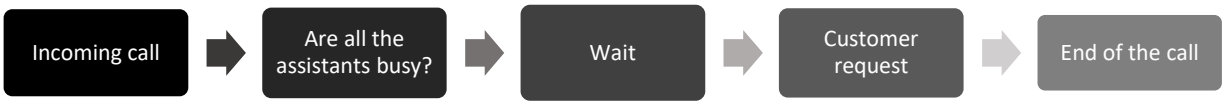


With our service for medium-sized call center companies, we intend to revolutionize the way telephone service is provided. By imitating this model of success in the telephone attention service, we will allow our clients to improve their service and obtain a competitive advantage over their competitors.

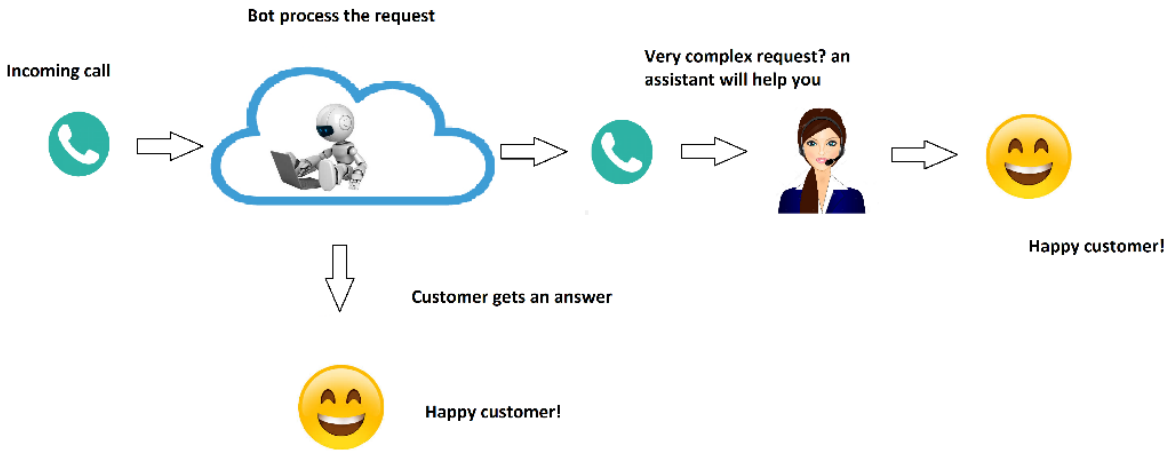
***OPERATION***

In order to show how we improve the user experience, it is necessary to understand which cycle a user goes through when he wants to make a query.

Currently, when a customer makes a call, the first stage is to check if there is a busy operator. Two things can happen, that the number of calls at that moment is so high that the client is forced to wait to be attended to or to be attended immediately. Both situations are negative. The first can cause dissatisfaction in consumers before being forced to wait to solve simple incidents. The second situation, although it is "positive" for the consumer, it is not for the company, because if it is attended immediately, that means the existence of an idle capacity that is not generating profit to the company.




To fix this situation, Marketing Analytics and Co. provide solutions that allow automating the first phase of the process of calling a customer to a call center. In this way, the customer in the first phase of the call is attended immediately by a bot. This bot is estimated to be able to solve around 70% of the queries of consumers. The remaining queries, if the bot is not able to solve them, it will redirect them to the most adequate operator.



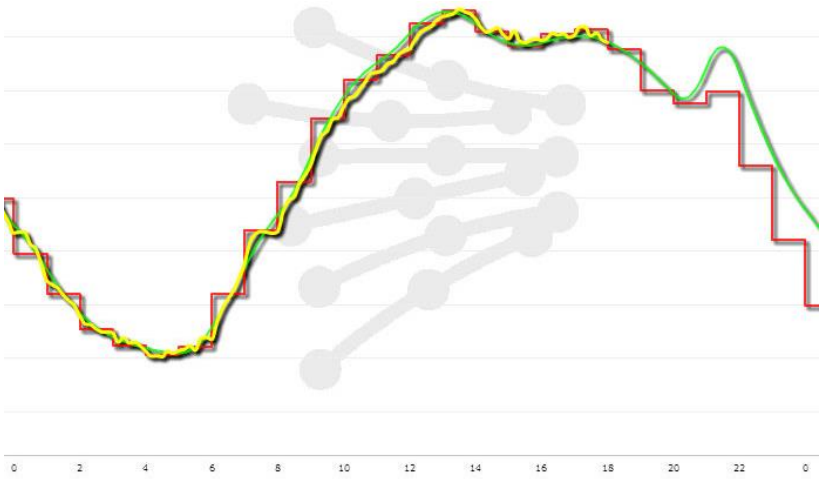
Process:

1. The customer's call is captured and redirected to the AI running in the cloud (Amazon Connect)
2. The AI manages the customer's call and, if necessary, redirects it to an operator.
3. The service contracted in the cloud (Amazon Connect) redirects the call to the operator if necessary.
4. The operator would attend the incident.

The main benefits of this architecture are:

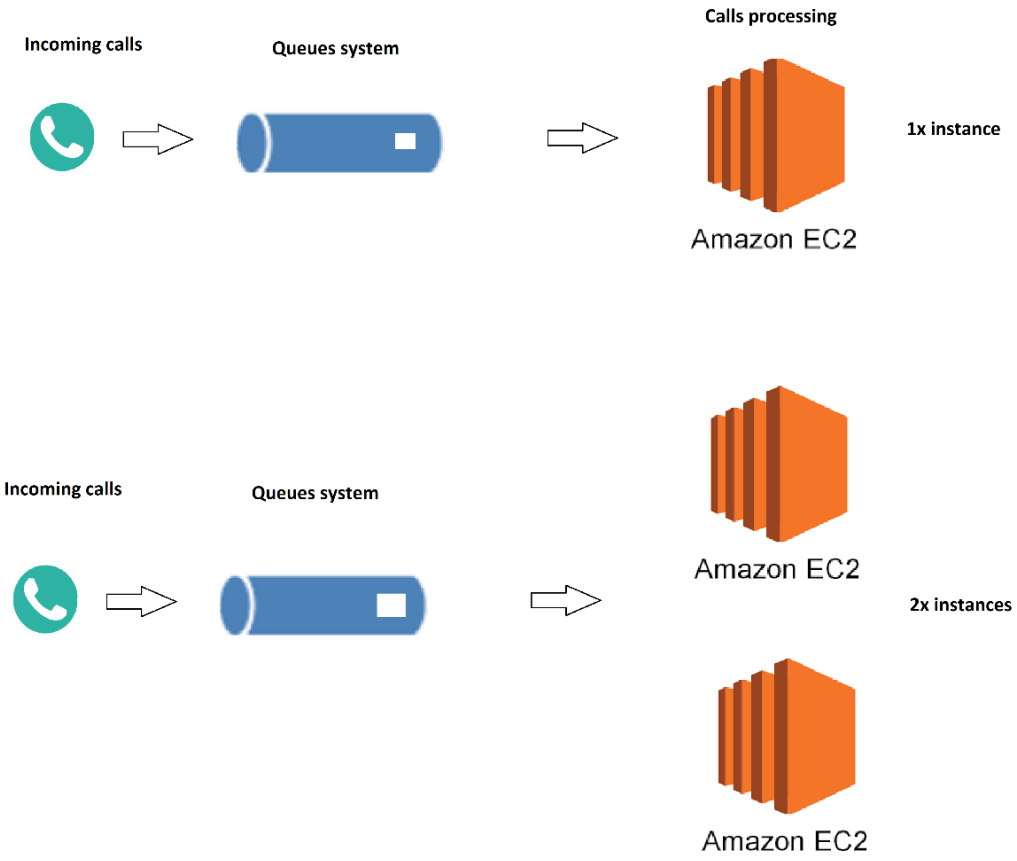
- The facility to size the size of the infrastructure and adapt it to changes in demand.
- Reduction of customer waiting times, providing a better service and having an impact on the image of the company.
- Cost of answering a call is significantly lower.
- Obtaining data from the transcription of calls in order to establish useful predictive analytics to improve business strategy.
- Costs aligned to business growth (pay-as-grow)

One of the great advantages of this system is an Amazon EC2 + S3 + SQS structure, which combines cloud processing with a queues system. It allows that, in case of necessity according to demand fluctuation throughout the day or the year or if business grows, the computer capacity of the system can be adapted.




*The system will be adapted according to the demand, increasing or decreasing the processing capacity according the incoming calls received. The red color is computational capacity deployed in each moment, yellow represents the historic demand of the day, and the green a forecast of the incoming calls.*

With this architecture, if the number of requests from the client in the queue is very high, a new instance (virtual machine) will be created to help serving the clients.

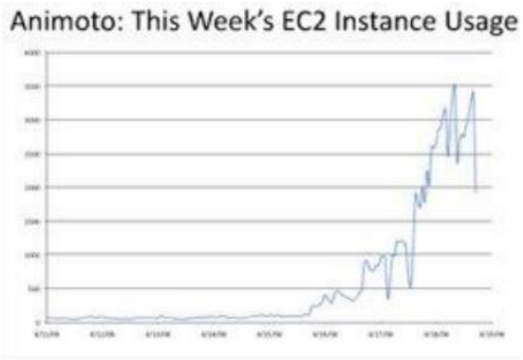



This architecture confers flexibility to the system, and it is a model of proven success; in mid-April of 2008, Animoto deployed the application for Facebook in which users could create videos using their own photos and music, which was built with an Amazon system EC2 + S3 + SQS.

Some statistics of this success case:

• More than 750,000 people registered in 3 days.

• The use of EC2 went from 50 instances to 3,500




Source: Jeff Bezos' talk at Stanford on 4/19/08

In our case we will not make such a massive use, but this example allows us to appreciate the flexibility of the system and the advantages they have for the client, without this system, the application would have been unable to meet the spectacular growth that it had of users.

***COSTS***

This is the representation of the estimated costs of each system:

| Elements | Cost |
|---|---|
| Direct Dialing Incoming (entry) | 0.085€ |
| Free Dialing (entry) | 0.40€ |
| Direct Dialing Incoming (cost/min) | 0.0035€/min |
| Free dialing (cost/min) | 0.0485€/min |
| Consumption IA/call (RAM) (1core) | 2GB |
| Processing IA/hour | 0.025€/hour |
| Outgoing call | 0.06€/min |
| Speech to Text | 0.02€/min |
| Text to Speech | 0.02€/1000 chars |
| Natural Language Understanding | 0.003€/call |
| Natural Language Classifier | 0.004€/call |

| Main costs in call attention | Cost |
|---|---|
| Rent price $m^2$(Madrid) | 11.08€/month |
| Labor cost/hour | 10.00 €/hour |
| $m^2$ office used per person working | 5m2 |

Assuming a call developed with Incoming Direct Dialing of 5 minutes, in which the use of 2 minutes of STT (Speech to Text), 2 minutes of TTS (Text to Speech) and 1000 was required, the estimated savings according to the different trainings carried out on the system would be:

*Pessimistic scenario*

Scenario 50%

| Elements | Cost | Architecture components | Cost |
|---|---|---|---|
| Office cost | 0,1478 € | Direct dialing (entry) | 0,0850 € |
| Labor cost | 0,8333 € | Cost Direct Dialing | 0,0175 € |
| | | Processing cost | 0,0021 € |
| | | Speech to Text | 0,0400 € |
| | | Text to Speech | 0,0200 € |
| | | Tone Analyzer | 0,0080 € |
| | | Natural Language Classifier | 0,0040 € |
| | | Natural Language Understanding | 0,0030 € |
| | | Cost of unresolved calls (50% human solved) | 0,4906 € |
| Total | 0,9812 € | Total | 0,6702 € |
| | | **Savings** | **32%** |

*Neutral scenario*

Scenario 70%

| Elements | Cost | Architecture components | Cost |
|---|---|---|---|
| Office cost | 0,1478 € | Direct dialing (entry) | 0,0850 € |
| Labor cost | 0,8333 € | Cost Direct Dialing | 0,0175 € |
| | | Processing cost | 0,0021 € |
| | | Speech to Text | 0,0400 € |
| | | Text to Speech | 0,0200 € |
| | | Tone Analyzer | 0,0080 € |
| | | Natural Language Classifier | 0,0040 € |
| | | Natural Language Understanding | 0,0030 € |
| | | Cost of unresolved calls (50% human solved) | 0,2944 € |
| Total | 0,9812 € | Total | 0,4739 € |
| | | **Savings** | **52 %** |

*Optimistic scenario*

Scenario 90%

| **Elements** | **Cost** | **Architecture components** | **Cost** |
|---|---|---|---|
| Office cost | 0,1478 € | Direct dialing (entry) | 0,0850 € |
| Labor cost | 0,8333 € | Cost Direct Dialing | 0,0175 € |
| | | Processing cost | 0,0021 € |
| | | Speech to Text | 0,0400 € |
| | | Text to Speech | 0,0200 € |
| | | Tone Analyzer | 0,0080 € |
| | | Natural Language Classifier | 0,0040 € |
| | | Natural Language Understanding | 0,0030 € |
| | | Cost of unresolved calls (50% human solved) | 0,0981 € |
| Total | 0,9812 € | Total | 0,2777 € |
| | | **Savings** | **72 %** |

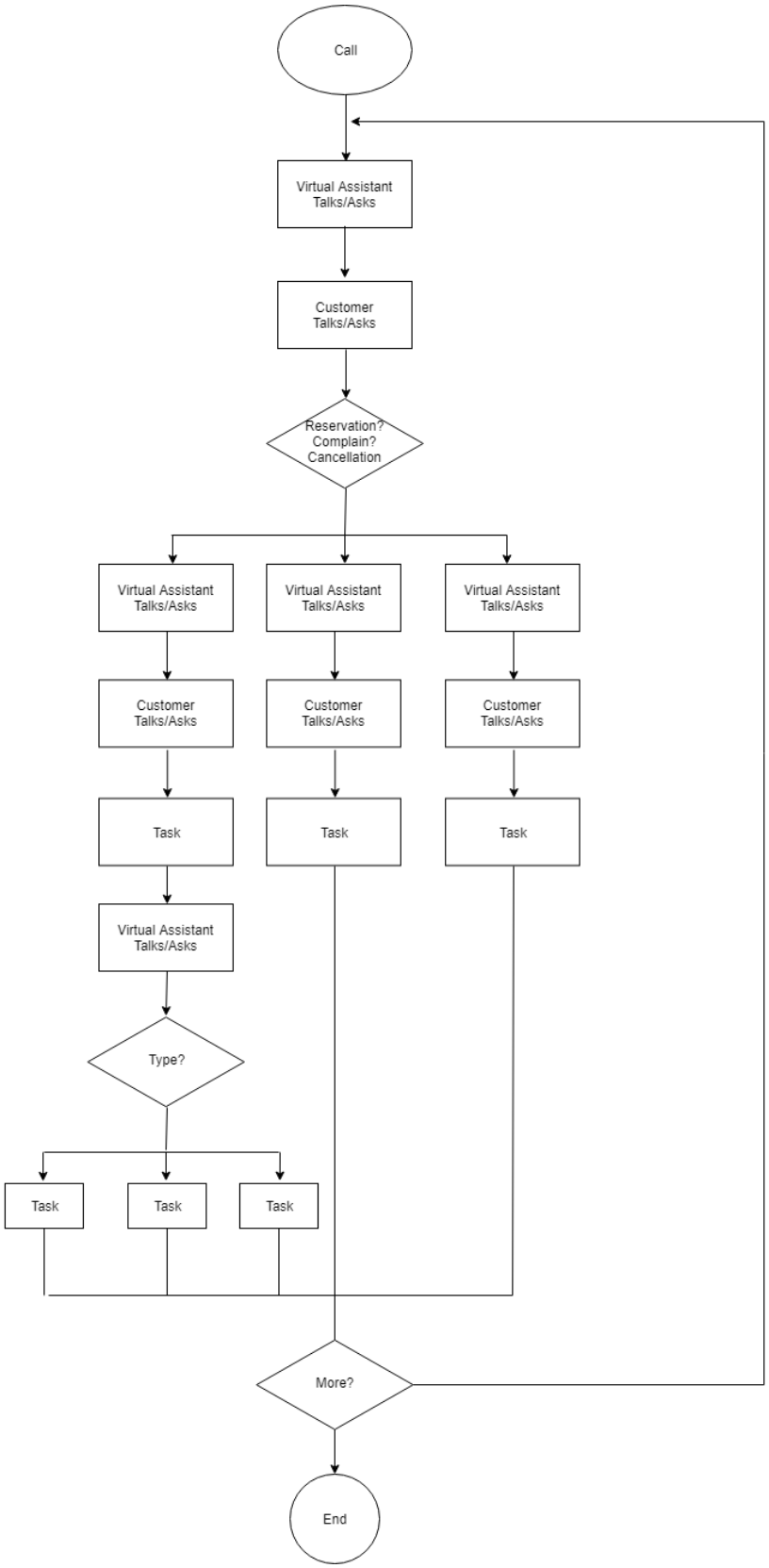
The performance of the solution provided by our team can vary depending on several factors such as the complexity of the system of the problem to be solved or even the language in which it is developed.

However, the following aspects should be highlighted:

- The customer would be taken care of immediately, improving their user experience.
- Even the worst savings would be very significant.
- Beyond the savings and the improvement of user experience, elements such as the Tone Analyzer and the automatic transcription of the calls, will allow storing that information for later analysis allowing to improve the business strategy.

***TECHNICAL DEVELOPMENT OF AI***

Flowchart example for management reservations and cancellation in hotels:



The figure shown represents the operation of a simple chatbot capable of managing reservations, cancellations and basic complaints of a hotel. As you can see there are series of actions that are repeated or have a very similar functionality, varying in many cases the input variables.

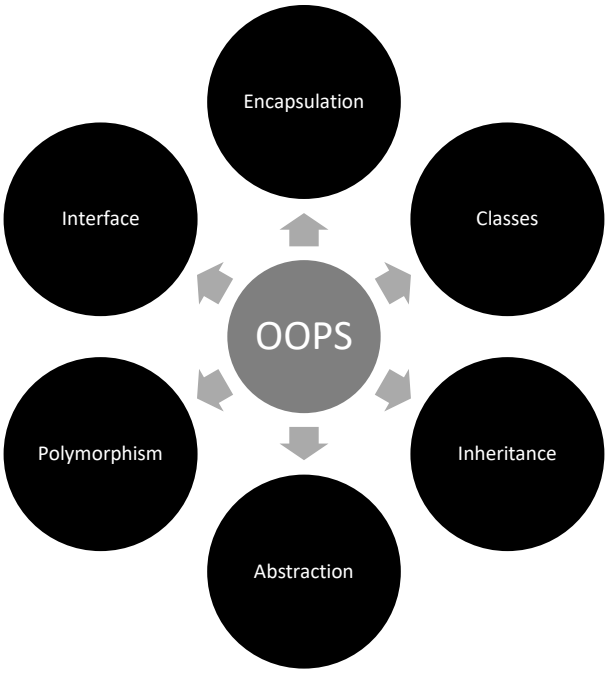
This characteristic of modularity allows subdividing an application into smaller parts (called modules), each of which must be as independent as possible of the application itself and the other parts.

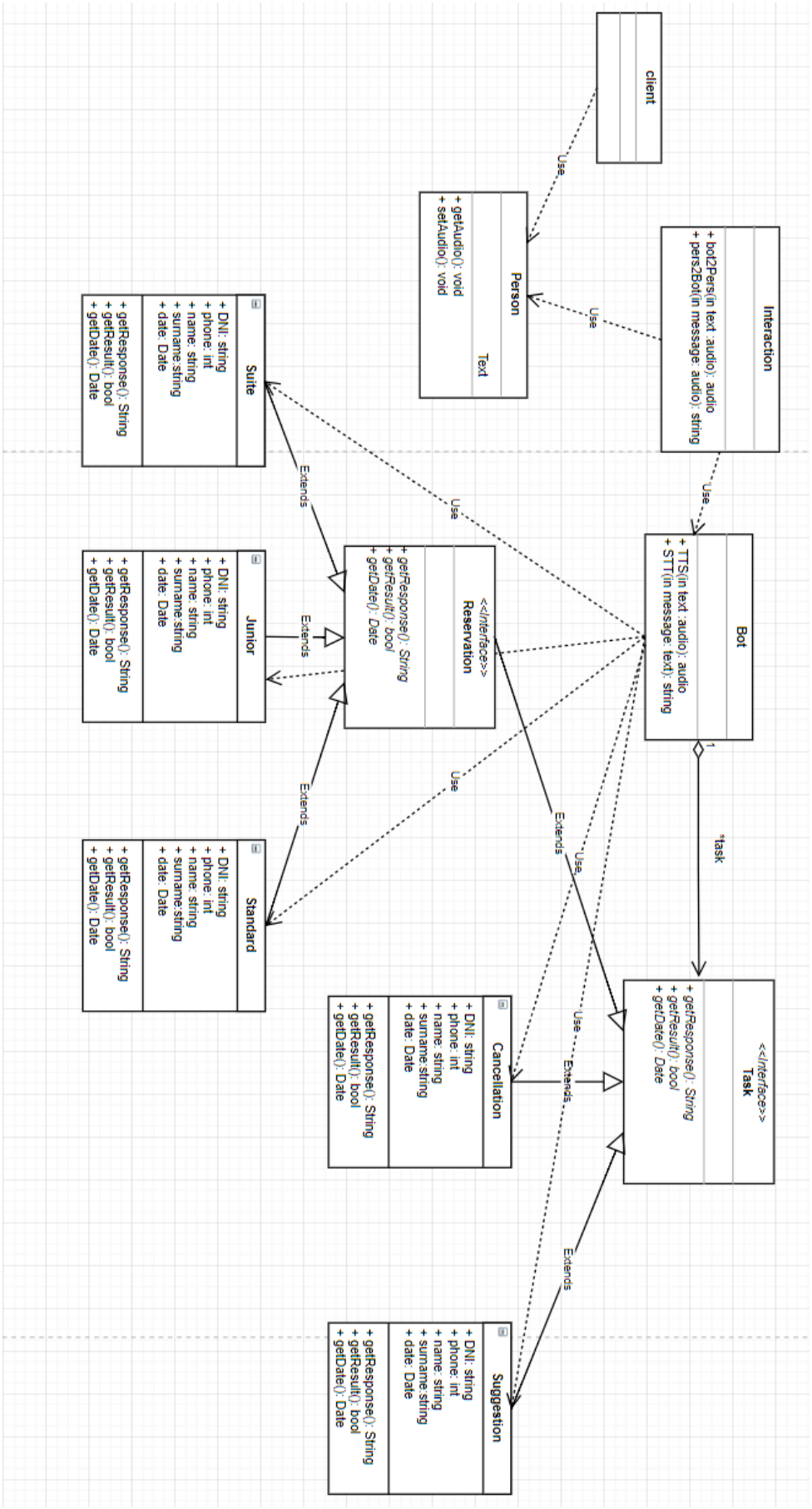
In order to achieve this modularity, a low coupling level and a high cohesion between each of the modules must be maintained, this means that each module must have a low level of dependence on other types of modules for each object to behave autonomous form.

A high cohesion, especially being functional, is achieved when each module performs a single task working on a single data structure, that is, an object that performs a processing function will not be the same as one that is responsible for interacting with The client, separating the different functions carried out in a program, facilitates the reuse.

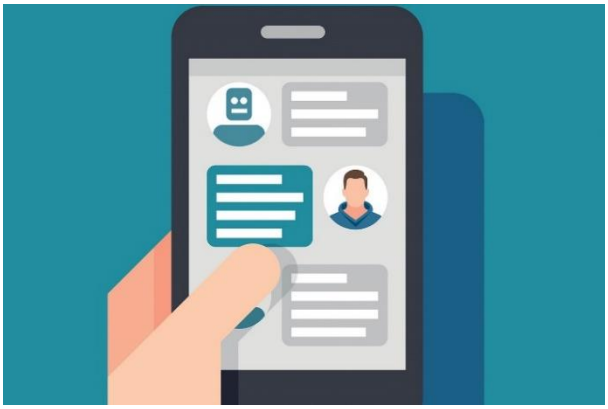
Following these two basic principles and other programming patterns that will specify the function that they fulfill next will be obtained a robust, reliable and reusable software that will allow to maximize the return of the capital invested.

To improve the flexibility with which the team works, a developed methodology inspired by DevOps and Extreme Programming will be used, so that a product will be continuously delivered to the client and will be continually configured, adjusting to their needs in this way. Implementation of our solutions will be developed in a very short time.




client
Use
Person
Text
+ getAudio(): void
+ setAudio(): void
Use
Interaction
+ bot2Pers(in text :audio): audio
+ pers2Bot(in message: audio): string
Use
Bot
+ TTS(in text :audio): audio
+ STT(in message: text): string
1
*task
Use
<<Interface>>
Reservation
+ getResponse(): String
+ getResult(): bool
+ getDate(): Date
Extends
Suite
+ DNI: string
+ phone: int
+ name: string
+ surname:string
+ date: Date
+ getResponse(): String
+ getResult(): bool
+ getDate(): Date
Extends
Junior
+ DNI: string
+ phone: int
+ name: string
+ surname:string
+ date: Date
+ getResponse(): String
+ getResult(): bool
+ getDate(): Date
Extends
Standard
+ DNI: string
+ phone: int
+ name: string
+ surname:string
+ date: Date
+ getResponse(): String
+ getResult(): bool
+ getDate(): Date
Use
Extends
<<Interface>>
Task
+ getResponse(): String
+ getResult(): bool
+ getDate(): Date
Use
Extends
Cancellation
+ DNI: string
+ phone: int
+ name: string
+ surname:string
+ date: Date
+ getResponse(): String
+ getResult(): bool
+ getDate(): Date
Extends
Suggestion
+ DNI: string
+ phone: int
+ name: string
+ surname:string
+ date: Date
+ getResponse(): String
+ getResult(): bool
+ getDate(): Date

### 4.2.2. CHATBOT



As we have seen, the automated call center is a very powerful tool when it comes to obtaining insights into the service and product offered, saving money for the company and improving the user experience and therefore the reputation of the company, which will lead to in the long run to increase the profitability of the company

From the development of this tool, another new tool could be obtained, almost identical to the previous one but simpler. In this case we are talking about a chatbot. As we saw before, the chatbot was mainly associated with the automated call center, but from this same tool we can use just the algorithms and part of the architecture designed from the automated call center to get a simpler chatbot, in which the only difference will be that the costumer won't need to call to a call center. Instead it will be enough to request help through an app or a web page, that could have this same software develop embedded.

This solution will be easier to maintain due to the fact that needs less computational processing and smaller and simpler architecture.

As the previous solution, the chatbot will work this way.

## 4.3. ADVANCED ANALYTICS

In addition to those specific services designed to improve the customer experience, we have a team of people specialized in the marketing sector who use their experience with the best tools from Big Data, to improve the marketing strategy.

This objective will be achieved through the use of data available by the company that until then were not being used, enriched with external data obtained from external sources or data accumulated throughout the different projects undertaken. For this we will need to implement an own architecture that allows us to develop the projects requested by the client.

Since we have not yet started to operate, in order to reduce the development costs, we will assemble the architecture in the cloud with that we obtain three advantages:

**Flexibility**

Since the project has not yet been started, we avoid charging ourselves with fixed costs and we operate in a way that we adapt the size of our infrastructure in the cloud as we grow. It will allow us to operate even without having an office.

**Continuous improvement**

In line with that flexibility we talked about in the previous point, we have the advantage of constantly adapting and obtaining continuous improvements in our architecture.

Implementing a physical architecture has several disadvantages, you need space, you need time and it becomes obsolete with the passage of time. With an architecture in the cloud you delegate part of those responsibilities, it is more expensive yes, but in exchange you are always updated.

**Higher safety standards**

The security of the information is an essential aspect for our business and more now with the implementation of the GDPR. The companies that provide these services have better security standards than those available to other suppliers or those that we could provide to our customers.

In summary with this service we offer our clients a very powerful tool that will allow them to improve decision making, encapsulating the complexity of the tool and making us responsible for maintenance and design.

This solution will provide a SaaS to the clients that will be based on a preliminary standard design but which, after being customized, will adapt adapting to the needs of the client.

For the client, the main advantages will be identical to the ones we obtain but will also have the use of a customized tool, of a great complexity that would require a great team for its design, development, implementation and maintenance at the beginning that later would be oversized, in addition to a know-how that it lacks and that in order to achieve it, it should undertake a very high investment.

Therefore, we can summarize the main advantages in addition to those already mentioned in:

- Lower cost both monetary and time
- Less complexity
- Great customization

### 4.3.1. OPERATION AND SYSTEM ARCHITECTURE

***DATA SOURCES***

The firm will obtain information from different sources. Special emphasis will be placed on acquiring data from public sources (Open Data). In addition to the Open Data sources, the architecture will be prepared in order to obtain data from unstructured sources such as social networks and internal data sources of the company to which the service is provided, and also if necessary for the campaign, the data acquisition, could be done through the use of sensors.


The client ERPs, CRMs, EDWs will be without any doubt one of the most important sources of information. This information will provide with insights about the behave and performance of their customers, this way, with and adequate information treatment, data enrichment, predictive techniques, we will be able to provide to Marketing Analytics clients advanced analytics that will give essential insight about how is going to behave their market, the competitors, customers in advanced, supporting the decision making by the management.

In a future, as customers are acquired by the firm and the client's portfolio grows, all this information gathered before we will increase our knowledge, allow us to increase the turnover of our firm and therefore the gains.

In order to obtain real-time data and do not lose any during the ingest of information, Kafka will be used.

Apache Kafka is an open-source stream-processing software platform developed by the Apache Software Foundation, written in Scala and Java. The project aims to provide a unified, high-throughput, low-latency platform for handling real-time data feeds. Its storage layer is essentially a massively scalable pub/sub message queue architected as a distributed transaction log, making it highly valuable for enterprise infrastructures to process streaming data.

***EXTRACTION***

Once we specified the sources used to obtain the data, we would proceed to the extraction. In this first stage, no data processing will be performed, i.e., the data will be stored in raw, so if necessary in the future they can be audited, in addition to improve the reliability of the system.

For the extraction of data that can be generated in real time, the use of Kafka type queuing systems is used, which is a unified, high performance, low latency platform for real-time manipulation of data sources.

It can be seen as a message queue, under the publisher-suscriptor pattern, massively scalable, conceived as a register of distributed transactions. The use of this system is due to the need to guarantee the obtaining of information generated in real time.

In order to process the data, Spark and Pentaho will be used.

Apache Spark is an open-source cluster-computing framework. Apache Spark has as its architectural foundation the resilient distributed dataset (RDD), a read-only multiset of data items distributed over a cluster of machines, that is maintained in a fault-tolerant way.

Spark is a key tool if the amount of data is that big that it can be processed by a single machine. This framework works in distributed, allowing smaller computer to work together to achieve a common goal. Also this framework has a tool Spark Streaming that will allow the team of Marketing Analytics to perform transformations in streaming in order to store de data in an adequate form, ready to use by next steps of the process.

Pentaho is a business intelligence (BI) software company that offers open source products which provide data integration, OLAP services, reporting, information dashboard, data mining, and extract, transformation, load (ETL) capabilities.

Pentaho will perform an essential job in the process of data transformation, due to that is easy to use and fast to develop applications that perform ETLs. This tool, in contrast with Apache Spark, does not work in distributed, the amount of information that can process is less, but still be important for the architecture due easy use.

***RAW STORAGE***

As mentioned in the previous point, the data will be stored in raw, in order to audit it if necessary and also to have a reliable system in case of failure. For this stage we will use HDFS, this is a distributed, scalable and portable file system written in Java for the Hadoop framework.

The reason behind this choice would be the ease of scaling and sizing the necessary infrastructure based on the information available, providing great flexibility.

***TRANSFORMATION***

In this stage, a transformation will be performed over this raw data in order to provide useful data ready to store in our Data Warehouse. In this stage it could be used different technologies such as Pentaho if we are performing this transformation in one machine or Spark in case of a distributed system.

***STORAGE***

In this stage the information will be stored ready to use. We will have a NoSQL Database as staging area that will load the information in a SQL database, the staging area will be the last step until we got the final information ready to provide information to the virtualization branch. This stage also will be a good backup of information in case that the calculations and transformations performed in the last stage


This information will be stored in SQL database, due to the fact that the DWE will use HOLAP. This methodology is a mix of ROLAP and MOLAP, this way we take advantage of the benefits of both systems. ROLAP relies on manipulating the data stored in the relational database to give the appearance of traditional OLAP's slicing and dicing functionality. In essence, each action of slicing and dicing is equivalent to adding a "WHERE" clause in the SQL statement.

This way we will be able to handle large amounts of data this is due to the fact that the data size limitation of ROLAP technology is the limitation on data size of the underlying relational database. In other words, ROLAP itself places no limitation on data amount.

In the other hand in MOLAP, data is stored in a multidimensional cube. The storage is not in the relational database, but in proprietary formats. MOLAP is faster than ROLAP and can perform more complex calculations.

This HOLAP will provide information build KPIs, Dashboards and reports to support the decision making.

Also in this layer could be used different NoSQL databases, in order to provide a scalable infrastructure easy to consult. This could be an additional storage different of the Data Warehouse.

For this layer could be used different framework such as Cassandra and Neo4j.

Neo4j is a graph database management system developed by Neo4j, Inc. Described by its developers as an ACID-compliant transactional database with native graph storage and processing, Neo4j is the most popular graph database according to DB-Engines ranking.

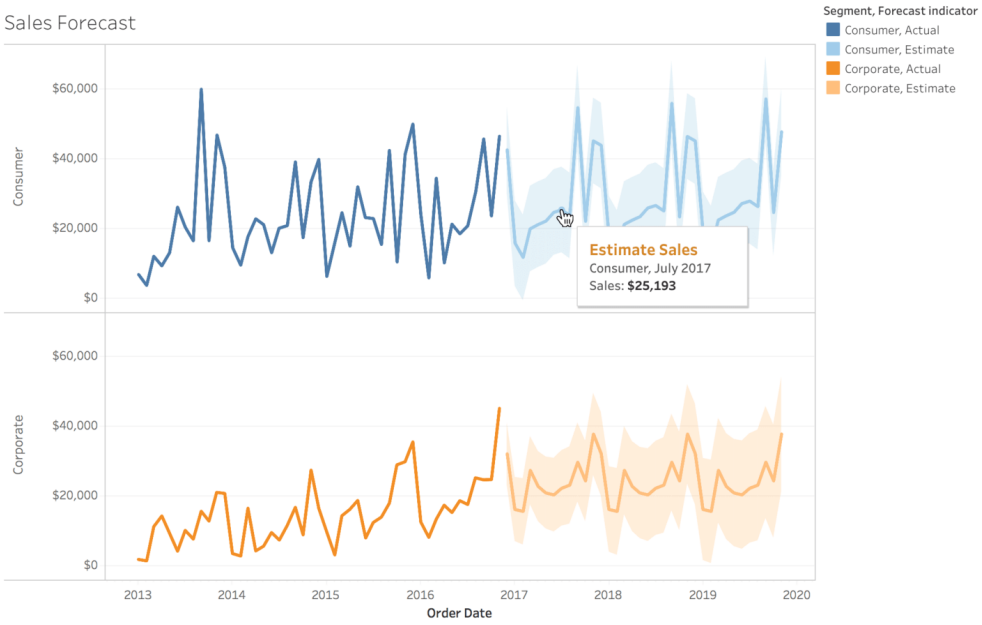
This Database is a great choice if we are going to analyze relationships among different entities. An example of use for this NoSQL DB could aim to the right influencers for the marketing campaigns develop by the firm.

Apache Cassandra is a free and open -source distributed NoSQL database management system designed to handle large amounts of data across many commodity servers, providing high availability with no single point of failure. Cassandra offers robust support for clusters spanning multiple datacenters, with asynchronous master less replication allowing low latency operations.

***VISUALIZATION***

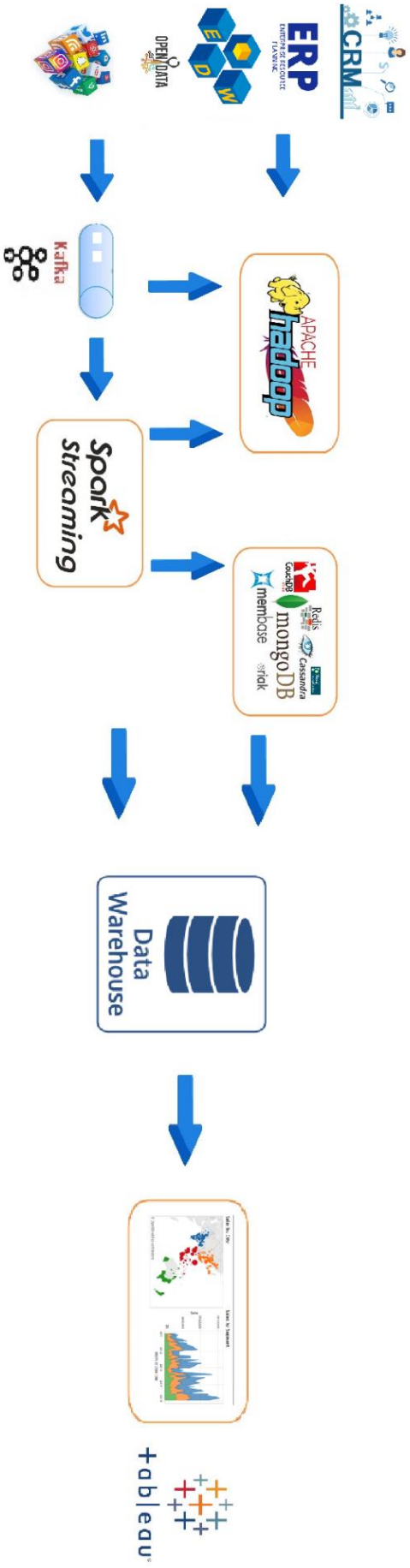
As important as the data quality and transformation, we need a final layer that provide to our clients an easy and intuitive way to interact with tool developed and to understand the insights provided. These tools will provide an easy way to understand and view the different KPIs defined during the designing of the project.

To plot the data Tableu will be used. Tableau is an industry leading BI tool that focuses on data visualization, dashboard and data discovery. With that said, if you are looking at Enterprise BI Reporting Tools, Tableau will not fit every need. It's not for operational reporting/tabular reporting. In these cases, Tableau is an excellent tool to augment an Enterprise suite. Also pentaho has a virtualization layer that could be used, and is easy to integrate with the ETL tool.




This tool will allow us to embed different dashboard, KPIs indicators very easily in the website where our clients will access to the tool developed by Marketing & Co

Therefore, the final architecture will be the following one:


ERP
CRM
Kafka
APACHE
hadoop
Spark
Streaming
mongoDB
Data
Warehouse
+ableau

## 4.4. VISUALIZATION AND REPORT

Visualization is the means by which humans understand complex analytics and is often the most crucial and overlooked step in the analytics process. As the complexity of the data increase, the complexity of the final model increases as well, making effective communication and visualization of data even more difficult and critical to the client.

For us, our clients are on the edge. The consumer of the product of all artificial intelligence or machine learning endeavors will be people. We ensure that results are delivered as actionable, impactful insights to act upon in business. The human brain is only able to process two to three pieces of information at a time and many different aspects of consumer behavior are influenced by more than just two or three events. This means that it is necessary to utilize advanced analytics and statistical modeling to accurately predict consumer behavior and KPIs for businesses.

Our visualization implementation will help to understand all the insights discovered during the analysis process and will be optimized for each client and business case providing them differentiating factor.

### 4.4.1. ADVANTAGES OF OUR VISUALIZATION IMPLEMENTATION

***Enhanced assimilation of business information***

Human eyes are able to absorb and grasp information more easily through visuals and images than texts and numerical figures. Still, classic reports are typically populated with static tables and charts that fail to make information vivid for those who view it. In contrast, data visualization enables users to receive vast amounts of information regarding operational and business conditions.

Data visualization allows decision makers to see connections between multi-dimensional data sets and provides new ways to interpret data through the use of heat maps, fever charts, and other rich graphical representations. In this way, we will be able to present data in such a way as to give full

***Quick access to relevant business insights***

Adopting visual data discovery, we help our clients to improve their ability to find and check the information they need when they need it and do so more productively than their competitors do. According to a study conducted recently, business managers in organizations that use visual data discovery tools are 28 percent more likely to find timely information than those who rely solely on managed reporting and dashboards.

***Better understanding of operational & business activities***

An important advantage of data visualization is how it enables managers to more effectively see connections as they are occurring between operating conditions and business performance. In today's highly competitive business environment, finding these correlations among the data has never been more important.

For example, applied to one of our services, by providing a multi-faceted view of business and operating dynamics, data visualization permits the users to see how the first-contact resolution rates in remotely located customer call center have performed recently, dramatically impacting customer satisfaction.

***Rapid identification of latest trends***

In this age, the volume of data that companies are able to gather about customers and market conditions can provide business leaders with insights into new revenue and business opportunities, presuming they can spot the opportunities in the mountain of data. Using data visualization, decision makers are able to grasp shifts in customer behaviors and market conditions across multiple data sets much more quickly.

***Accurate customer sentiment analysis***

Using data visualization, companies can attain a deeper dive into customer sentiment and other data, which reveals emerging opportunities for them to launch new services to their customers. These useful insights enable the enterprises to act on new business opportunities for staying ahead of their rivals.

***Direct interaction with data***

Our data visualization will help the companies to manipulate and interact with their data in a direct manner not only after, but also during the entire project. One of the greatest strengths of data visualization is how it brings actionable insights to the surface. Unlike one-dimensional tables and charts that can only be viewed, data visualization tools enable users to interact with data.

***Drill-down analysis***

Using heat map data-visualization, managers can illustrate which product groups are performing well or underperforming and drill down into the data to determine the factors that are shaping sales. These insights could be used to target promotions to this customer segment to increase conversion rates and revenue growth for this category.

***Customized data-visualization***

A yet another vital advantage of optimum data-visualization is that it not only provides graphical representation of data but also allows changing the form, omitting what is not required, and browsing deeper to get further details. Additionally, it provides a great advantage over traditional methods of presenting data and allows the clients take advantage of all the analysis and big data tools.

### 4.4.2. SERVICE

Visualization as part of our complete service is based on Tableau. It is particularly well suited to handling the huge and very fast-changing datasets that we manage in Big Data operations, including artificial intelligence and machine learning applications.

Thanks to integration with a large number of advanced database solutions including Hadoop, Amazon AWS, My SQL, SAP or Teradata. This allow us adapt to clients who already have an existing system and only need manage their data.

We can define different kind of dashboards, all of them accessible at any time to our client by URL via the chosen device.

- ***Starting dashboard:***

  With different kind of plots, it is possible to show the clients actual situation and explain them the areas which are susceptible of optimization.

- ***Analysis dashboard:***

  During the analytical stage, we use visualization tools connected to our servers. In this way, we can have a first visual check of the data. This will help us to understand it and looking for a starting point.

  In addition, it will help us to explain our clients what are we doing during all the process and encourage the exchange of ideas and communication between teams.

- ***Final dashboard:***

  The purpose of this dashboard is to plot the results after our analysis. The client could check differences between real and after-implementation recommendations results, predictions obtained by means of our machine learning models, and every situations and KPIs studied during all the process.

  Based on this final report, the company may choose take their own decisions or follow our specialized recommendations.

- ***Control and maintenance:***

  If the client wants it, we can design a customized dashboard with all key elements, data, variables and KPI´s chosen by the client, which will be connected to de database. In this way, this dashboard will be dynamic, allow the final user to consult it and see clearly all the data to evaluate performance.

  Updates can be each hour, day, week, etc., depending on the preferences of the customer.

# 5. MARKETING PLAN

The main purpose of the implementation of this Marketing Plan is to set the foundation in terms of customer target, current competitors and communication strategies, alligned with the Operations and Finance Plan, in order to succeed within the business of Data Analytics.

## 5.1. CUSTOMER SEGMENTATION

The development of the customer segmentation was a vital phase of the execution of the project. As the Data Analytics industry is really wide and can be applied to almost any sector someone can think of, it gives a huge range of possibilities to develop a business.

It is worth mentioning that, at the beginning of the project, the customer segmentation was different from the one that finally was decided. At first, the target for Marketing Analytics Co. was thought as focusing on a generic market, opened to any sector but directing the marketing efforts to a segment of start-ups and small and medium companies willing to implement a digital transformation but with a lack of resources to do so, with the following characteristics:

- Reduced number of employees.
- With no marketing department.
- Generating a huge amount of data that was not analysed.
- Companies that are willing to boost their presence online.

After a deeper research of the target options for Marketing Analytics Co., the customer segmentation approach was modified, as the original idea was too generic, and this lack of differentiation could danger the business path of the company. Also, it would be easier to focus the know-how of the business activity in a specific type of customers. Therefore, several industries were proposed to focus the segment of the business, and finally it was decided that the target for the company was the hotel industry.

There were two main reasons influencing this customer segmentation: the first one was the lack of specialization of the original idea; the second was the huge seasonality factor of the hotel sector, and the great amount of data that can be analysed in order to boost the position of a customer within this sector.

A more detailed definition of the customer segmentation for Marketing Analytics Co is given as follows:

- Small and medium hotel companies.
- With difficulties capturing their potential customers.
- With limited marketing activity within their business.
- Generating a great amount of data, but with not enough resouces to manage it.
- With no proper presence online.

## 5.2. BUYER PERSONA

In order to exemplify better the customer segmentation defined in the previous section, we have designed three different types of buyer personas, to be able to know better how our customers behave. As our business model is a B2B company, our buyer personas are the managers, directors and owners of the companies that are part of our potential target.

**ANA PÉREZ**

36 YEARS OLD

MANAGER OF A BEACH APARTMENT IN NERJA (MÁLAGA)

COORDINATES A TEAM OF 20 PEOPLE

**JOB GOALS**

ANA WOULD LIKE TO GAIN NEW CUSTOMERS AND EXPAND THE BUSINESS, BUT LACKS OF MARKETING KNOWLEDGE

SHE LOOKS FOR INCREASING THE SALES OF THE COMPANY, TAKING INTO ACCOUNT THE HIGH SEASONALITY OF THE HOSTELRY SECTOR

**ABOUT THE BUSINESS**

THE COMPANY IS SETTLED IN A REALLY TOURIST TOWN, WHICH MAKES THE HOTEL SECTOR IN NERJA REALLY COMPETITIVE

IN ORDER TO GROW, ANA WILL NEED THE KNOW-HOW TO BOOST THE COMPANY'S PATH

# ANTONIO LÓPEZ

38 YEARS OLD

OWNER OF A RURAL HOSTEL IN CERCEDILLA (MADRID)

HE STARTED THE BUSINESS IN 2014, WHEN HE INHERITED IT FROM HIS GRANDPARENTS

## JOB GOALS

ANTONIO IS FACING THE CHALLENGE OF TAKING CARE OF THE FAMILY BUSINESS

HE WOULD LIKE TO HAVE A GREATER PRESENCE ONLINE, AND HAVE MORE VISIBILITY FROM THE POTENTIAL CUSTOMERS OF COMPANY

## ABOUT THE BUSINESS

THE HOSTEL ATTRACTS CUSTOMERS ONLY BY A WEB-PAGE WHICH WAS DESIGNED 8 YEARS AGO, AND HAS GOTTEN REALLY OLD-FASHIONED TO BE ABLE TO COMPETE IN THE SECTOR

THE COMPANY IS GOOD ON MANAGING THE BUSINESS, BUT NEEDS A HIGHER PRESENCE AMONG THE SECTOR

# IÑAKI GARCÍA

43 YEARS OLD

SALES DIRECTOR OF A CENTRIC HOTEL IN BILBAO (PAÍS VASCO)

THE COMPANY HAS 50 EMPLOYEES WORKING THERE

## JOB GOALS

IÑAKI HAS BEEN WORKING IN THE HOTEL INDUSTRY FOR 20 YEARS, AND HAS A GREAT KNOW-HOW OF THE SECTOR

HE WOULD LIKE TO APPLY DATA ANALYSIS TOOLS TO BE ABLE TO IMPROVE HIS POSITION IN THE COMPANY

## ABOUT THE BUSINESS

THE COMPANY HAS BEEN GROWING FOR THE LAST 5 YEARS, BUT CURRENTLY THE SALES OF THE BUSINESS HAVE STOPPED RISING, AND THE COMPETITORS ARE GAINING MARKET SHARE

## 5.3. COMPETITORS ANALYSIS

In order to be able to understand the market and our potential competitors, we have developed a market research, and we have selected three of our main competitors in the Marketing and Data Analysis industry.

**Inturea**

*Business core:*

- Digital marketing planning.
- Online content.
- Result analysis.
- Tourism influencers.

*Customers:*

- Differentiated hotels.
- Treatment centers.
- Big resorts.

**Uzink Marketing**

*Business core:*

- Strategic marketing: definition, implementation and KPIs.
- Brand marketing: brand image, corporate image and strategy development.
- User experience: user process improvement, products and services design support.
- Capturing and attracting customers.

*Customers:*

- Lawyer firms.
- Hotels.
- Franchise companies.

**Esario**

*Business core:*

- Hotel marketing.
- Tourisim marketing.

*Customers:*

- Hotel chains.
- Travel brands.
- Franchise companies.

## 5.4. COMMUNICATION

In order to position Marketing Analytics Co. in the sector of the Data Analysis within the Hotel industry, several communication efforts need to be implemented. The phase of executing these communication actions is crucial to the business, as it is key to capture the customer target already defined. A successful communication plan needs, not only to focus on the segment that has been stablished and lead it to capture as many customers as possible, but also to look after this target and maintain it.

The process of communication in Marketing Analytics Co. will have to adapt to the development of the business, therefore different phases, regarding the evolution of the company within the sector, have been defined as follows:

#### PHASE 1: CAPTURING AND POSITIONING

Firstly, we need to focus our communication efforts on introducing ourselves to the market and making the company visible among the Hotel industry, and more specifically, among our established customer target. For this first phase, the following actions will be executed:

- E-mail campaigns to capture potential customers.
- Proactive social media.
- Events and fairs within the Hotel industry.
- Start-up incubators and co-working sites related with tourism.

#### PHASE 2: MAINTENANCE

Once we have achieved a certain amount of market share, and we have obtained visibility and presence within the market, we need to focus our actions on maintaining this situation. In this phase, the following actions will be implemented:

- SEO/SEM positioning.
- Online website designing.
- E-mail campaigns to our current customers with new service lines they could be interested in.

#### PHASE 3: BUSINESS EXPANSION

Once we have penetrated the desired customer segment, we would lead our communicating efforts towards new customer segments.

- Agressive advertising campaigns.
- Focus on new markets.
- Growth expansion, making us visible in other countries.

# 6. FINANCIAL PLAN

The initial investment that it is required to create our company is composed of 26264,4€ non-current assets (laptops and our own Chabot software) and 10.000€ of cash that will be provided by a potential investor, we need cash in order to satisfy all the initial payments that are required until our company generates positive Free Cash Flows.

| **Current assets** | 10000 |
|---|---|
| Cash | 10000 |
| Currency | 0 |
| Clients | 0 |
| **Non current assets** | 26264,43 |
| Tangible assets (Total) | 2400 |
| Laptops | 2400 |
| Intangible assets (Total) | 23864,43 |
| Software license | |
| Software chatbot | 23864,43 |
| Total Assets | 36264,43 |

| **Equity** | 36264,43 |
|---|---|
| Social capital | 36264,43 |
| **Shor term liabilities** | 0 |
| Short term liabilites | 0 |
| Suppliers | 0 |
| **Long term liabilities** | 0 |
| Long term debt | 0 |
| Total liabilites and equity | 36264,43 |

The average yearly growth of a company is of 23%, as we can see most of our expenses are due the wages payment, in addition we can see a change in the amortization due to the acquisition of new laptops for the new employees.

The net income will be positive in a same way than the Free Cash Flow of each year, we will only have negative FC during certain quarters, but we can satisfy those payments thanks to our cash generated in the previous years.

The Cost of Goods Sold remains stable because we are just hiring services of servers, and they usually don't change. The medium size project has a cost three times bigger than the small size one, on the other hand, the big size project has a total cost that represents the double of the medium one.

| | Years | | | | | | |
|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | Total |
| **Revenues** | | 74000 | 99000 | 149000 | 181.000 | 214000 | 717000 |
| Cost of Good Solds | | 14855,61 | 19807,48 | 29711,22 | 36313,71 | 42916,21 | 143604,23 |
| **Gross Margin** | 0 | 59144,39 | 79192,52 | 119288,78 | 144686,287 | 171083,793 | 573395,77 |
| Other expenses | | | | | | | 0 |
| Salaries | | 45000 | 60000 | 96000 | 116000 | 144000 | 461000 |
| **EBITDA** | 0 | 14144,39 | 19192,52 | 23288,78 | 28686,29 | 27083,79 | 112395,77 |
| Amortization | | 5012,89 | 5012,89 | 5012,89 | 5012,89 | 5012,89 | 25064,43 |
| Depreciation | | 480 | 480 | 640 | 640 | 640 | 2880 |
| **EBIT** | 0 | 8651,50 | 13699,63 | 17635,89 | 23033,40 | 21430,91 | 84451,34 |
| Interest | | | | | | | 0 |
| **EBT** | 0 | 8651,50 | 13699,63 | 17635,89 | 23033,40 | 21430,91 | 84451,34 |
| Taxes | | 1297,73 | 2054,95 | 4408,97 | 5758,35 | 5593,09 | 19113,09 |
| **Net income** | 0 | 7353,78 | 11644,69 | 13226,92 | 17275,05 | 15837,82 | 65338,25 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Net Income** | 0 | 7353,78 | 11644,69 | 13226,92 | 17275,05 | 15837,82 | 65338,25 |
| Amortization | | 5012,89 | 5012,89 | 5012,89 | 5012,89 | 5012,89 | 25064,43 |
| Depreciation | | 480 | 480 | 640 | 640 | 640 | 2880 |
| Change in Working Capital | | | | | | | 0 |
| CAPEX | 1200 | | | 800 | | | 2000 |
| **Free Cash Flow** | -1200 | 12846,66 | 17137,57 | 18079,81 | 22927,94 | 21490,70 | 91282,68 |

The indexes that we will use to value the quality of an investment in our company are the next ones, considering a cost of capital of 8,59% (sources from Damodaran):

- IRR: The Internal Rate of Return of our project considering a five years period of time will be of 35,67%, a percentage that proves the great performance that our company has developed at that time.
- NPV: The Net Present Value that our company will have at that time is 33.745,7€, which represents the profitability in absolute terms at that time.
- Payback: the initial investment (36264,4€) will be recovered in two years and seven months.

| | |
|---|---|
| Levered Beta | 1,17 |
| Risk free Rate | 1,13% |
| E Market Risk Premium | 7,27% |
| Cost of Capital | 8,59% |

| | Methods of valuation |
|---|---|
| **Net Present value** | 33.745,69 € |
| **IRR** | 35,67% |
| **IRR modified** | - |
| **Payback** | 2,58 years |