

Consulting Project for the company José de Mello Saúde

Strategic Guidelines to potentialize **MyCuf** as a value driver in the way José de Mello Saúde delivers its service to the clients

Work Project presented as part of the requirements for the Award of a Masters Degree from Nova School of Business & Economics

Consulting lab carried out under the supervision of:
Professor Constança Monteiro Casquinho

NOVA SCHOOL OF BUSINESS & ECONOMICS

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A C K N O W L E D G M E N T S

To **Dr. Rui Diniz**, not only for the presence and tremendous assistance through the constant feedback offered at the Steerings, but also for the guidelines and knowledge shared, enabling us to add more value to the company as consultants.

To **Dr. Rui Salinas**, for the support and engagement with the team, for sharing his knowledge and allowing us to join José de Mello Saúde's MyCuf team during the project.

To **Dr. Nuno Oliveira**, **Dr. Gonçalo Teixeira**, **Dr. Miguel Ferreira**, **Dra. Maria Ana Castello Branco**, **Dr. Miguel Falcão**, **Dr. Daniel Teixeira**, **Dr. Carlos Liz** and **Dra. Marta Soares**, for the help and time provided.

To **Tânia Ferreira** and **Inês Silva**, part of MyCuf team, for the ideas shared and feedback given after each Steering presentation.

To all the doctors interviewed, for their time and valuable inputs, so important for the development of the app MyCuf PRO.

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To **Professor Catherine Silveira**, **Professor Ilya Okhmatovskiy** and **Professor José Pinheiro**, for their knowledge and expertise contribution which enriched the output delivered.

CONSULTING LABS

These field labs intend to provide students a real-life consulting experience together with the first tools a consultant needs to succeed in a future career.

OVERVIEW

Consulting Labs provide masters' students the opportunity of having a real-life consulting experience before entering the job market. Under the supervision of Professor Constança Casquinho, strategic guidelines were drawn to the development and empowerment of José de Mello Saúde's mobile app – MyCuf – and to set the bases for a new app designed for José de Mello Saúde's doctors – MyCuf PRO.

During this 4-month-project, the team was based at José de Mello Saúde's headquarters in Carnaxide, being able to join the company's MyCuf team and build both professional and personal relationships with José de Mello Saúde's collaborators.

The team highly expects and believes to have added value to the company with the project.

ADVISORS



Dr. Rui Diniz
Dr. Rui Salinas



Prof. Constança Casquinho

OBJECTIVES

The overall purposes of these field labs are:

- To **bring value to the company** and to respond to the company's needs by engaging with the company's corporate culture
- To enable the students to **face a real-life consulting challenge**
- To **put into practice the theoretical concepts** learned throughout the academic path
- To **develop teamworking and soft skills**

TEAM



Tiago Almeida



Maria Ramalho



José Luís Silva



Diogo Relveiro



João Nuno Martins

The project with José de Mello Saúde, the private healthcare leader in Portugal, represents a huge opportunity to develop our knowledge and work skills, as real challenges are addressed and tackled.

COMPANY | JOSÉ DE MELLO SAÚDE

José de Mello Saúde (JMS) is part of the Portuguese corporate Group José de Mello and it is the largest private healthcare provider in Portugal. The group built its first hospital in 1945 and over the past 70 years it has been an example of clinical excellence and a source of experience and know-how. JMS is present across the country as it manages a network of healthcare facilities that keeps expanding. Currently, it owns one institute, eight clinics and eight private hospitals under the brand CUF, plus two private-public hospitals.

The vision of the company is to be the leader in providing healthcare services through a net of interrelated facilities, delivering high quality and performance both in the private and public sectors. The company's mission consists in promoting those healthcare services, supporting them on knowledge, respect for human life and the environment, ultimately leading the company to the development of intellectual capital and constant excellence.

THE PROJECT

The main goal of the project is to understand if it possible to **increase efficiency in JMS' app MyCuf** and, assuming that hypothesis is correct, to determine possible areas of intervention in order to reach that efficiency. To assess these opportunities, some questions had to be answered:

- What are the main trends impacting healthcare worldwide and how do they relate to the Portuguese context?
- What is mobile healthcare? What are other healthcare providers offering to their clients? How can we apply the best practices to our reality?
- Is there enough demand for these services in Portugal? How is the sector evolving?
- How can MyCuf be improved and reach more clients?
- How can we use the same concept and develop an app for doctors? Do they want it? If so, what do they want? And how to introduce the new app to them?

Given the tasks and the client's inputs, 3 main areas of intervention with **3 very clear deliverables** were defined:

- A final list of features that should be implemented in MyCuf based on the national and international best practices.
- A plan on how to reach more clients and make MyCuf a common part of CUF patients' journey and experience.
- A list of possible features that doctors would like to have access to on an app created for them.

EXECUTIVE SUMMARY | approach to the challenge

Having in consideration the overall context of the project and the challenges to address, the team came up with an approach divided in 3 phases: diagnosis, analysis and recommendations.

CONTEXT

Many healthcare trends converge to the need of developing new digital solutions such as mobile health apps in order to add value to the patient experience.

More people use smartphones and lifestyle apps to keep track of their medical and health information.

The use of these mobile channels is also increasing in Portugal such as the demand for private healthcare services.

Given the favorable economic growth in Portugal and the fact that JMS is expanding, the company should leverage its already existing app to improve the client's experience and relation with the CUF brand and develop plans to reach out to more clients.

CHALLENGE

- What are the main trends impacting healthcare worldwide and how do they relate to the Portuguese context?
- What is mobile healthcare? What are other healthcare providers offering to their clients? How can we apply the best practices to our reality?
- Is there enough demand for these services in Portugal? How is the sector evolving?
- How can MyCuf be improved and reach more clients?
- How can we use the same concept and develop an app for doctors? Do they want it? If so, what do they want? And how to introduce the new app to them?

APPROACH

DIAGNOSIS

- Healthcare industry worldwide and trends impacting the market
- Mobile healthcare as a competitive tool
- The Portuguese healthcare sector

ANALYSIS

- JMS' performance and the opportunity to increase its efficiency with mobile channels
- Benchmark of healthcare mobile apps

RECOMMENDATIONS

- How can MyCuf's empowerment as an efficient tool bring added value to JMS?
 1. MyCuf Development: new features to implement
 2. Adoption & Utilization Plan: a set of tools to increase the number of active users
 3. MyCuf PRO: features to include in the app for doctors and marketing tools to spread the message

FURTHER ANALYSIS

- Expected Impact in numbers
- Taking advantage of challenges
- Implementation Plan/Future Work

Considering the 3 main areas of action and the respective goals of the project, the methodology used for each section was the following.

	MYCUF DEVELOPMENT	ADOPTION & UTILIZATION PLAN	MYCUF PRO
GOAL	<p>Reinforce the contribute of the app to the efficiency of JMS' services, particularly regarding client satisfaction, brand strengthening and administrative efficiency.</p>	<p>Broaden the number of users of MyCuf – increase both the registration and the frequency of usage among the clients universe</p>	<p>Design an app for doctors – improve administrative tasks' performance in and outside the hospital</p>
METHODOLOGY	<p>Firstly, the team tried to understand MyCuf's positioning and best practices among other healthcare providers' apps, either national or international. For this reason, an exhaustive benchmark was conducted. Internationally, MyCuf was ranked 16 out of the 29 apps benchmarked and when compared to the other Portuguese healthcare providers' apps, MyCuf's came in second out of 9.</p> <p>Having collected a list of features and combining those with the ones already present in the existing pipeline, the team started analyzing each feature individually. For that, we developed scorecard weighting 2 key criteria: the expected impact (given by the client's satisfaction and the administrative efficiency) and the easiness of implementation, that was evaluated in collaboration with JMS' Information Systems Direction.</p> <p>With the scorecard results, the team created 4 clusters for each criteria through a statistical approach in order to segment the features according to their level of priority</p> <p>Combining these scores in a visual matrix led us to conclude about the features that would make more sense to be included in the app. These recommendations were carefully considered as divided into 3 different groups: Priority, Structural and Easy Kills.</p>	<p>The team started looking at the adoption and utilization plan by investigating, with the help of a qualitative research, the main barriers behind adopting and using the app. Also, through some academic research, the 4 main variables that explain customers' intention of adoption were found and used as a framework.</p> <p>By defining an ideal scenario (and its assumptions) where it would be possible to target the most valuable customers, all the rational and variables behind it were explained. Accordingly, keeping the same assumptions, the team proposed a theoretical approach to the market segmentation using some proxy variables.</p> <p>Then, considering all the barriers identified, clients' pain points and the customer journey process, recommendations for improvements in communicating the app were needed.</p> <p>The solutions had a broad and mass market strategy and tried to answer the 3 questions: what, when and how?</p> <p>Although the costs of implementing all the recommendations were not taken into consideration, the team estimated the necessary budget and established possible Key Performance Indicators (KPIs) to measure the success of the recommended strategies.</p>	<p>Having been informed that the quality of services delivered was been being compromised due to some difficulties in administrative processes, such as the communication with doctors, the team was challenged to develop an app designed for JMS' doctors exclusive use.</p> <p>Firstly, in-depth interviews were conducted with doctors from different units and areas of specialization in order to understand the main issues they face on a daily basis.</p> <p>Secondly, after organizing the information collected, quantitative surveys were prepared to send to all doctors working for CUF to collect additional information that could have been missed in the in-depth interviews. Due to Data Protection Legislation, this was not possible, so the team used alternative sources to decide which features to suggest for the app.</p> <p>Following the same approach as the one considered for the development of the clients version of MyCuf, the team was able to gather a set of features that should be considered for the first stage of the app development.</p> <p>In addition, in light of the previously developed plan, the group also provided some recommendations concerning the adoption and utilization of the app by the doctors, having in consideration that the target would be to reach 90% of CUF's doctors.</p>

Considering the 3 main areas of action and the respective objectives of the project, the recommendations for each goal are the following

	MYCUF DEVELOPMENT	ADOPTION & UTILIZATION PLAN	MYCUF PRO
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RECOMMENDATIONS	<p>The app MyCuf should include 19 new features that are divided into 3 groups with different criteria:</p> <p>4 PRIORITY Agenda's Eligibility Push-Up Notifications Post-Discharged Reports Restricted Results</p> <p>9 STRUCTURAL Attendance Notifications Check-in Collect Exams Multiple Check-in Results – Image Schedule Exams Schedule Extra Slot Third Parties Account Written communication</p> <p>6 EASY KILLS Client's Personal Notes Declaration of Presence GPS Import Results Prescriptions' Validity Renew Prescriptions</p>	<p>In order to reach more clients and have them use the app, a few measures concerning should be applied:</p> <p>PAID Banners & Flyers with QR codes MyCuf Stands Trial Features Google AdWords</p> <p>OWNED Social Media Optimization Tickets MD Ambassador MyCuf in the appointment Waiting Room TVs Contact Centre (CC) Waiting Line Name of the app Onboarding Experience Administrative Staff as Promoters Search Engine Optimization Improve Ratings AppStore preview Push-up Notifications MyCuf by Default Help Desk</p>	<p>The new app for doctors should include 8 simple features that will capture doctors' attention:</p> <p>7 PRIORITY Cancel Appointment Communication with other Doctors Holidays' Schedule Push-up Notifications Schedule Appointment View Appointments' Schedule Written Communication with Front Offices and CC</p> <p>1 STRUCTURAL Operating Theatres' Schedule</p> <p>The app must be presented to doctors in a way that the message and the benefits of using it are clearly comprehended. A few measures should be used:</p> <p>PAID Posters & Flyers</p> <p>OWNED Email & News Tickets Explanatory Presentation Workshops New Features</p>

ABBREVIATIONS

ANF – Portuguese National Association of Pharmacies (includes Farmácias Portuguesas Program)

ATM – Automated Teller Machine (cash machine)

BYOD - Bring Your Own Devices

CC – Contact Centre

CRM – Customer Relationship Management

FO – Front Office of either Hospitals or Clinics

FTEs - Full Time Equivalent (40 working hours/week)

GDPR - General Data Protection Regulation

HCD - Hospital CUF Descobertas

HCIS - Hospital CUF Infante Santo

INE – Portuguese National Institute of Statistic

ISD - Information Systems Direction

KPIs - Key Performance Indicators

MAC – Assistant CUF Doctor

MMS – Multimedia Messaging Service

NHS - National Healthcare Service

PD - Production Department

PPP - Public-Private Partnerships

GLOSSARY

ACTIVE USER

Someone that has created an account (Basic or Premium) on MyCuf service.

ADSE

Portugal's public healthcare subsystem.

AI – ARTIFICIAL INTELLIGENCE

Neural networks designed on computer systems that allow computers to simulate and even expand the way the human mind processes data.

AMERICAN BILLION

1 American billion is equal to 1 000 000 000 units.

APPSTORE

Digital distribution platform of mobile apps.

ASSOCIATED DOCTORS

Doctors that have privileged slots when scheduling a clinical act for their customers, on CUF units. These doctors are not paid by JMS.

BIG DATA

Refers to an huge and diversified volume of Data, exchanging at high velocity.

CHATBOT

An Artificial Intelligence program that simulates conversation with human users, through written text and/or voice commands.

GLOSSARY

COSTUMER PAIN POINT

Circumstances where the customer faces obstacles to satisfy his need

CUSTOMER JOURNEY

Decision-making process of a customer, when buying a product/service.

EFR - ENTIDADE FINANCEIRA REGULADORA

Entities behind healthcare insurances or subsystems (e.g. Insurance Company).

EMPLOYEE NET PROMOTER SCORE

Likelihood of an employee to recommend his company / job / product to friends / clients.

HEALTHKIT

Store of health data, available on smartphones.

IDNS - INTEGRATED DELIVERY NETWORKS

Formal systems composed by healthcare providers or sites that offer healthcare services and insurance plans to patients in a certain geographic area.

INBOUND CALL

Incoming call to the Contact Center.

INPATIENT

Patient who attends hospital's services and stay there overnight.

GLOSSARY

IOT – INTERNET OF THINGS

Set of vehicles embedded with electronics, software, sensors and network connectivity that enables these objects to connect and exchange data.

IT - INFORMATION TECHNOLOGY

Branch of technology, that use digital devices to store, retrieve, transmit and manipulate data.

LMA - LISBON METROPOLITAN AREA

Metropolitan Area of Lisbon includes 18 counties of great Lisbon and Setubal Peninsula. The counties are the following: Lisboa, Amadora, Oeiras, Cascais, Sintra, Odivelas, Loures, Vila Franca de Xira, Mafra, Almada, Seixal, Sesimbra, Barreiro, Moita, Montijo, Alcochete, Palmela and Setúbal.

MHEALTH - MOBILE HEALTHCARE

Refers to the use of mobile communication devices such as smartphones, tablets, computers, and other devices in the practice of medicine and healthcare.

NON-ACTIVE USER

Someone that downloaded MyCuf app, but has not created an account yet.

OUTBOUND CALL

The operator from the Contact Center makes the call.

OUTPATIENT

Patient who attends hospital services, but does not stay there overnight.

PMA – PORTO METROPOLITAN AREA

Metropolitan Area of Porto includes 17 counties of Porto and Aveiro districts. The counties are the following: Santo Tirso, Trofa, Arouca, Oliveira de Azeméis, Santa Maria da Feira, São João da Madeira, Vale de Cambra, Espinho, Gondomar, Maia, Matosinhos, Porto, Póvoa de Varzim, Valongo, Vila do Conde, Vila Nova de Gaia and Paredes.

PSA – PAID SEARCH ADVERTISEMENT

Paid per click adds that appear on websites or on Search Engine Results Pages.

QR CODE – QUICK-RESPONSE CODE

Two-dimensional barcode used to store data.

KIOSK

Touchscreen display available at CUF units that allows customer to take listed tickets for Front Office receptions and make automatic Check-In.

RISK ADJUSTED MORTALITY INDEX

Adjusted measure to predict the risk of death in a hospital.

RISK ADJUSTED READMISSIONS INDEX

Adjusted measure to predict the risk of readmission in a hospital.

SEM – SEARCH ENGINE MARKETING

Subset of Internet Marketing that aims to get more visibility in search engines either by free or paid traffic.

GLOSSARY

SEO – SEARCH ENGINE OPTIMIZATION

Mechanisms of web content optimization that intend to increase website's visibility on Search Engine Results Pages.

SERP - SEARCH ENGINE RESULTS PAGES

Lists of web pages that the search engine algorithm determined according to the best match for a given search.

SMO – SOCIAL MEDIA OPTIMIZATION

Mechanisms of advertisement on social media networks in order to manage and grow organization's message and online presence.

A G E N D A



JOSÉ DE MELLO SAÚDE

DIAGNOSIS

1. THE HEALTHCARE INDUSTRY
2. THE PORTUGUESE HEALTHCARE SECTOR

ANALYSIS

1. JOSÉ DE MELLO SAÚDE
2. MYCUF
3. MYCUF PRO

RECOMMENDATIONS

1. HOW CAN MYCUF INCREASE JMS' EFFICIENCY?
 - 1.1. MyCuf Client Development
 - 1.2. Adoption & Usage Plan
 - 1.3. MyCuf PRO

FURTHER ANALYSIS

1. MEASURING IMPACT
2. CHALLENGES
3. IMPLEMENTATION PLAN

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1. THE HEALTHCARE INDUSTRY

1. THE HEALTHCARE INDUSTRY | ecosystem (1/12)

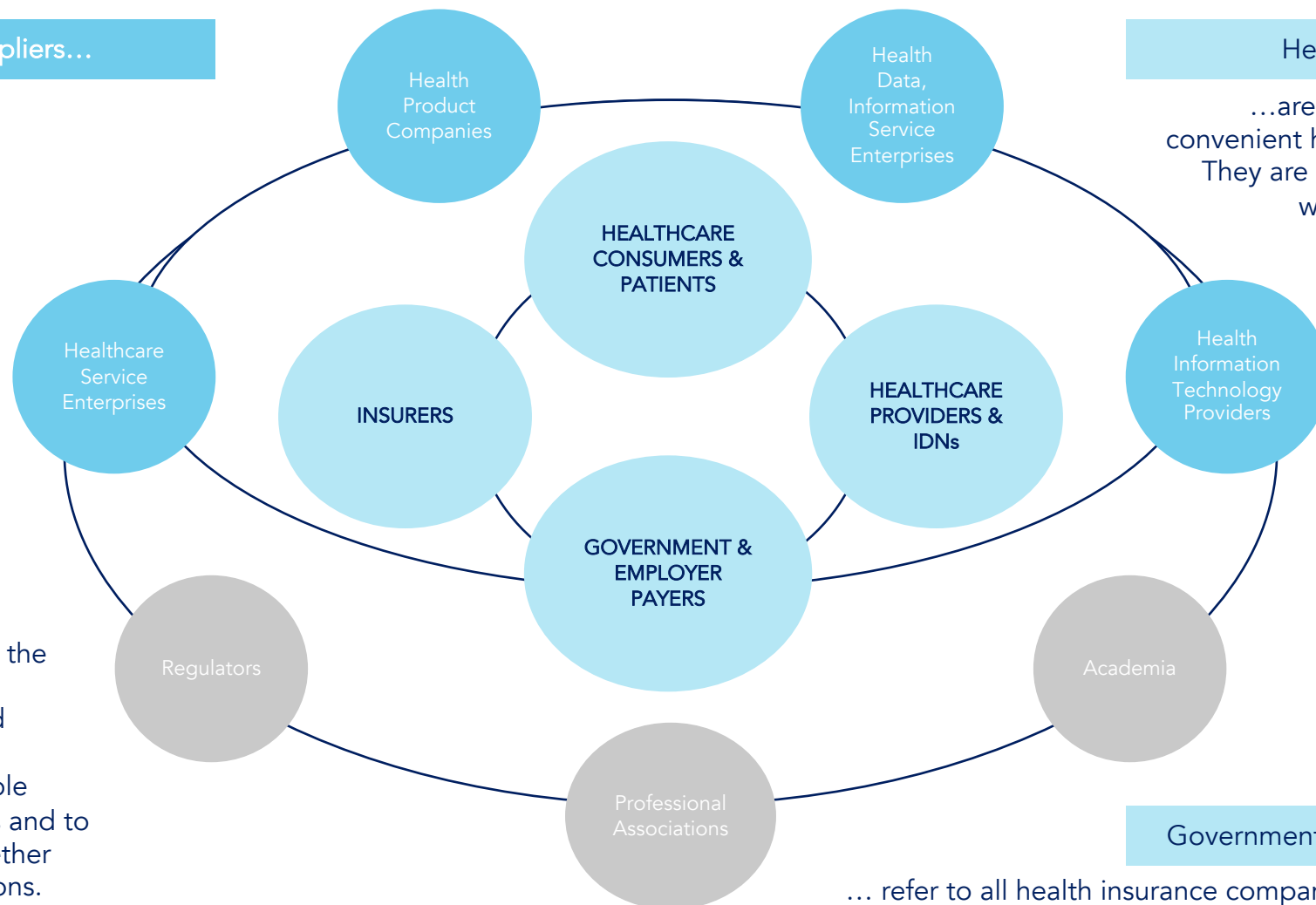
The healthcare ecosystem has become increasingly complex as the emerging generation of information technology is boosting innovation across the whole healthcare value chain, giving room to the rise of new stakeholders.

Health Industry Vendors & Suppliers...

...include all the companies - such as pharmacies, pharmaceutical companies, IT companies - whose main drift is to assure the growing and sustainable development, marketing and delivery of healthcare products and services in the healthcare market.

Health Industry Regulators, Professional Associations & Academia...

...are responsible for enriching the healthcare market with the introduction of ideas, tools and technologies. Regulators are supposed to promote favourable conditions to the organizations and to address policy challenges together with the Professional Associations. Academia bring to the healthcare system innovative ideas and *trendy* offers.



Healthcare Consumers & Patients...

...are those who demand efficient and convenient healthcare services and products. They are becoming increasingly savvy and with a high level of specific needs.

Healthcare Providers & Integrated Delivered Networks (IDNs)...

...face the challenge of reducing resources' expenditure while delivering their clients quality and fair priced products, remaining financially viable. IDNs are formal systems composed by healthcare providers or sites that offer healthcare services and insurance plans to patients in a certain geographic area.

Government & Employer Payers & Insurers...

... refer to all health insurance companies, businesses, organizations or individuals that either pay for health insurance coverage or cover the cost of medical care. Employers continuously seek for strategies to assure the increasing quality of their human capital and workforce productivity.

1. THE HEALTHCARE INDUSTRY | overview (2/12)

Technological changes such as advances in the medical research field and enhancements in healthcare data processing and analysis are expected ahead. These will contribute to the already going on change and evolution of the healthcare industry at an extremely fast pace.

Currently

Having the possibility to access affordable and high-quality healthcare products and services continues to shape the healthcare market and drive the consumers' preferences. Healthcare providers have been putting their efforts together to fulfil this requirement. Hence, in the healthcare ecosystem, 3 phenomena are taking place:



CONSUMERS & PATIENTS

Increasing Concern About Health Costs

greater pressure on other healthcare stakeholders of the healthcare ecosystem, constraining their margins and even leading to a decrease in their profitability.

According to Deloitte's 2016 Survey, **people are becoming less confident about their ability to finance future healthcare expenses.**

This financial pressure that is falling over consumers will soon put

Greater emphasis on consumers

increasing access to the information about healthcare expenses and outcomes, their decisions will be increasingly based on value. Healthcare providers will only be one step ahead of their competitors if their patients are fully *"engaged and enlightened."*

Healthcare products and services have always been focused on **consumers**. However, this has recently become an imperative if a provider wants to succeed in the business. As consumers have an

Convergence of healthcare sectors

fixed-asset efficiencies, economies of scale and incentives' alignment across the industry.

In a consumer-oriented growing business, **partnerships and mergers are likely to occur** and to bring a considerable amount of advantages to stakeholders. Some of these advantages include

1. THE HEALTHCARE INDUSTRY | emerging trends (3/12)

We selected 7 of the most important trends that are shaping the current situation of the healthcare industry and that will become even more important in the future.



1. MEDICAL ADVANCEMENTS



2. DEMOGRAPHICS



3. BUSY LIFESTYLES



4. USE OF SMARTPHONES



5. CONSUMER PREFERENCES



6. THE EXPERIENCE



7. DIGITAL HEALTH

MAIN TAKE AWAYS

The **modern medicine** world is evolving very quickly and many **breakthroughs** are on the way. Still, the industry faces huge **challenges** such as the ageing population.

As technology evolves, more people are using **smartphones** around the world and they perform very important tasks through apps as their **lifestyles are busier than ever**. Some of these apps are related to health, as consumers are interested in using **mobile channels** to keep track of their health information.

It is necessary to **keep adding value** and improve the patient experience. A **digital approach** might be the solution as artificial intelligence and mobile apps are expected to become even more relevant in the digital health environment, influencing the way healthcare is provided to consumers.



1. THE HEALTHCARE INDUSTRY | emerging trends (4/12)

Such as technology, the medicine world is quickly evolving and reflecting all the R&D that is being invested in the industry. The future will bring tremendous advances for this sector and influence the life of millions.



1. MEDICAL ADVANCEMENTS

Things are moving very fast in the world of modern medicine. Medical technology keeps advancing at a rapid pace as **medical breakthroughs and pioneering research** are being pursued:

- Advances in biomedicine and pharmaceuticals are achieving unparalleled success against diseases that could not be cured before.
- Drones are starting to be used in helping the distribution of medicine to isolated areas.
- Gene embryo editing is a technique that will help to cure and avoid genetic diseases.
- Solutions to fight the high levels of cholesterol are being studied with the development of new drugs.
- Neuromodulation is a new way to treat apnea that involves an implant.
- An artificial pancreas for diabetics is being tested.
- The development of vaccines is very expensive and takes time but some companies are looking for new ways to produce these vaccines and make them more readily available and easier to transport to remote areas.
- **Technology companies are becoming a critical player in the healthcare industry**, such as pharmaceutical companies.

These are just some predictions for the near future in the world of medicine that reflect the R&D in the industry and the advances that are being achieved.



1. THE HEALTHCARE INDUSTRY | emerging trends (5/12)

The ageing population and other chronic diseases have been emerging as huge challenges for the healthcare industry in developed countries. Portugal is no exception as the population over 65 years old is expected to keep growing.

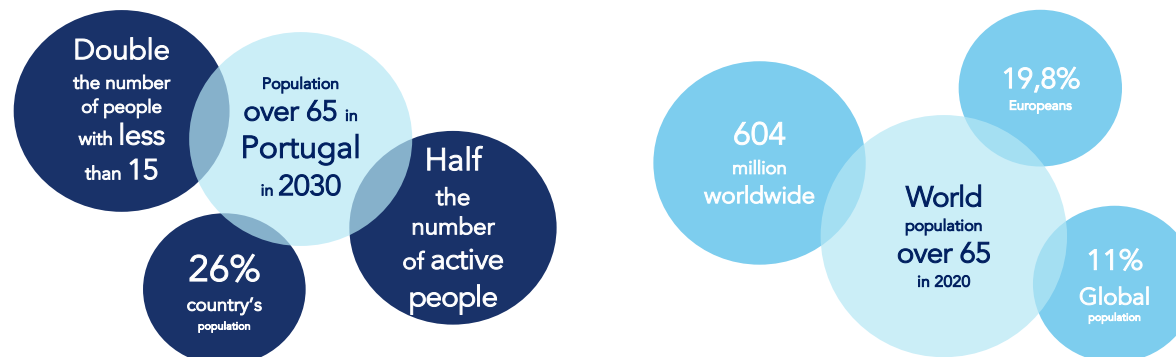


2. DEMOGRAPHICS

The ongoing challenge of the **ageing populations in developed countries** will continue to increase the demand for both private and public healthcare systems. By 2020, the number of people over 65 years old will reach 604 million, which is equivalent to 11% of the world's population. Out of these, almost 20% will be Europeans¹.

Looking to **the case of Portugal** in particular, the population is ageing with the proportion of **those aged 65+ expected to account for over a quarter of the total population by 2030**. If we consider the active population exclusively, then this number is even higher. By 2030, the number of people over 65 will be the same as 44% of those who are part of the working population. By 2030, the number of people over 65 will be two times bigger than the number of people with less than 15 years old, and it can be three times bigger by 2050².

There are other issues to be concerned involving the population. **Obesity is an increasing reality** and the number of obese adults worldwide is forecast to reach 1,17 billion by 2025. The costs involved are very significant, having represented 2.8% of the global GDP in 2014 (2 trillion \$)¹. **Chronic diseases** such as diabetes or specific **cancers** will also represent a challenge for the healthcare industry in the years to come. The number of people affected by diabetes is approximately 400 million and it is expected to increase.



¹Deloitte, 2017, *The future awakens: Life sciences and health care predictions 2022*

²Fundação Francisco Manuel dos Santos, 2012, *Projeções 2030 e o Futuro*

1. THE HEALTHCARE INDUSTRY | emerging trends (6/12)

Younger generations are leading very busy lives but are also becoming more aware of the need to follow healthier lifestyles. They use several apps to help them organize their lives and be more productive. Health apps are amongst these apps.



3. BUSY LIFESTYLES

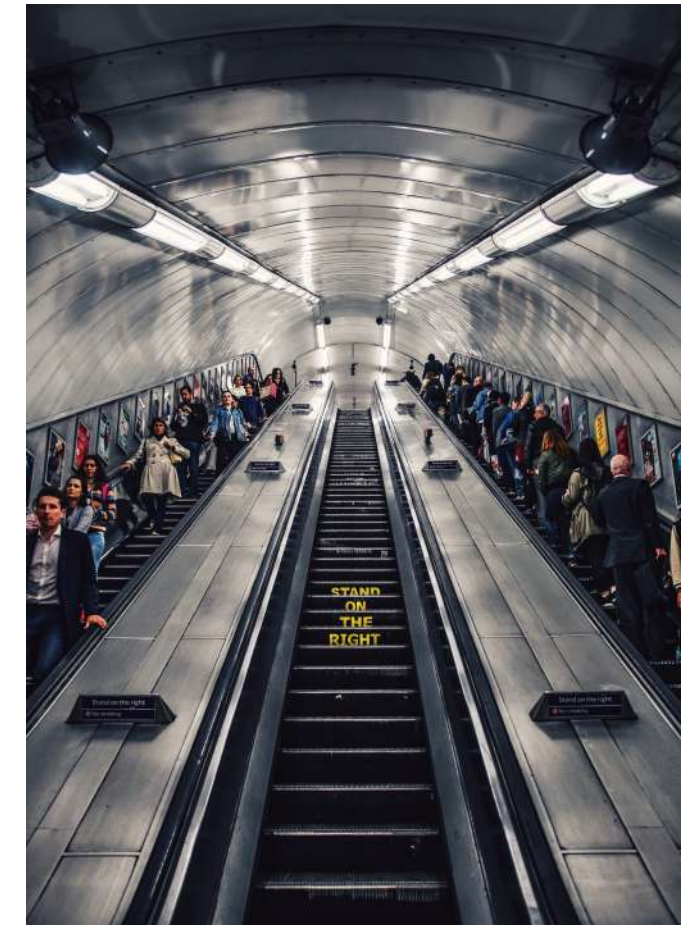
Besides the ageing population trend, the younger generations have been following very **busy, frenetic and mentally exhausting lives**. The Portuguese population is no exception to this situation and it is known that levels of stress in Portugal are increasing overall, being responsible for a few health problems like insomnia and gastrointestinal issues.

Younger people are becoming **more health-conscious** consumers and are giving more importance to following healthier lifestyles. Studies show there is an increasing tendency of researching about these topics online and the influence of social media is having a strong impact in consumers. More people follow natural diets and some consumers are willing to pay slightly more for branded healthier products².

As consumers with busy lifestyles try to avoid going to the doctor when it comes to treating minor health issues, consumer health products in Portugal are still mostly distributed in pharmacies. In fact, many Portuguese people feel **confident in self-medicating** for these problems.

Given all these circumstances, people are also using **healthy lifestyle apps** in their daily lives in order to keep track of their activities and productivity. Some of these apps are related to fitness activities (like Nike's Running app), to healthy eating habits, to monitoring sleeping hours, to organizing people's schedule or to helping people be more productive with things like groceries shopping or planning a party. One thing all these apps have in common is that they **make people's lives easier** and consumers value that.

Following the same logic, a few apps related to specific medical conditions like diabetes or cholesterol have been increasing their popularity amongst the affected ones. In fact, even healthcare providers are adopting **digital solutions**, creating apps to make the relation between the hospital and patient closer, easier, faster and more efficient.



1. THE HEALTHCARE INDUSTRY | emerging trends (7/12)

More people are using smartphones around the world. The number of smartphones is growing and the penetration rate in areas like Western Europe or North America is reaching 65%.



4. USE OF SMARTPHONES

Smartphone users are expected to grow from 2.1 billion in 2016 to around 2.5 billion in 2019. The smartphone penetration rates are projected to increase as well. Globally, it is forecast that over 36% of the world's population will use a smartphone by the end of 2018¹.

Western Europe and North America combined are the largest markets for smartphones, as approximately **65% of both region's total population is expected to own a smartphone by 2018**, which represents more than the double compared to 2012.

As of 2017, 67% of the Portuguese population used a smartphone. The penetration of smartphones in Portugal has tripled in the last five years².

"The rise of the smartphone has reinvented the way we live our lives. Companies need to acknowledge this and be ready to deal with consumers that are connected always and everywhere. There is no such thing as being offline anymore"³



¹Statista, 2018, *Smartphone users worldwide*

²Uber Official Website

³Deloitte, 2017, *State of the smart: Consumer usage patterns of the smartphone*

1. THE HEALTHCARE INDUSTRY | emerging trends (8/12)

With the increasing penetration of smartphones, their use has evolved and most activities are not even related to making calls or texting. Many important daily tasks are done with the use of apps as consumers get used to this kind of platforms.



4. USE OF SMARTPHONES

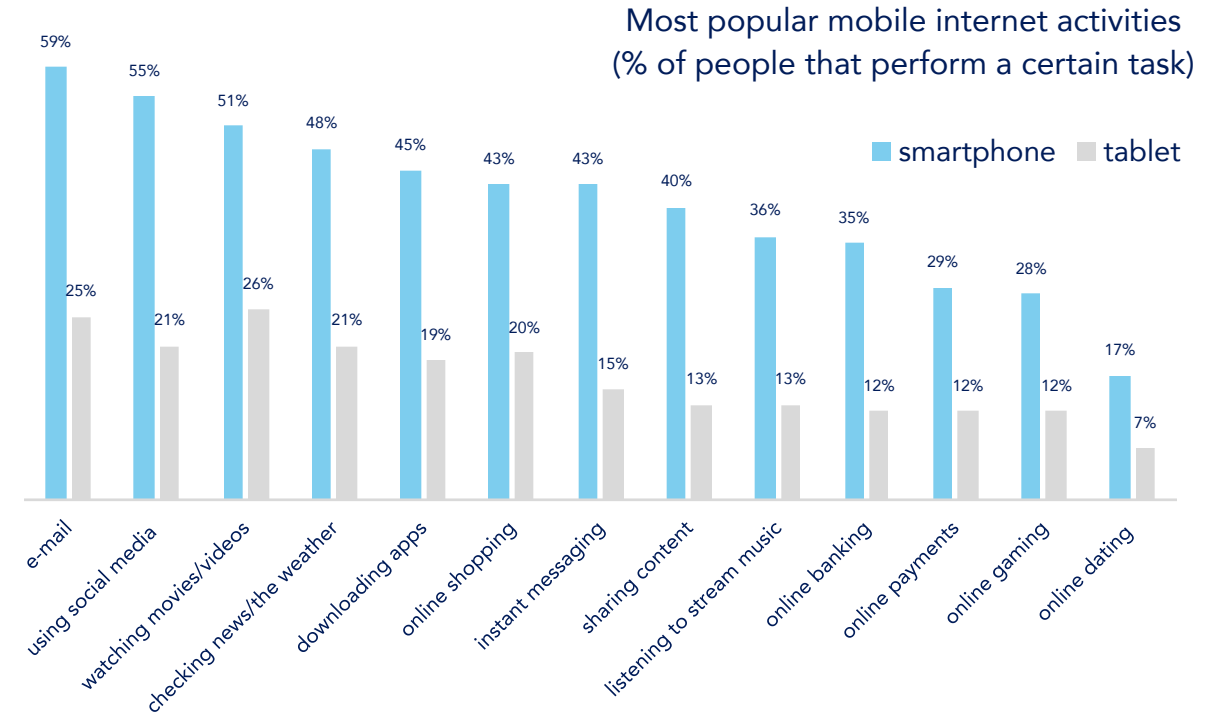
Smartphones aren't just for calling or texting anymore. Data shows that some of the most frequent functions/apps used involve the browser, the camera, checking the news or the weather, listening to music, using photo apps and navigation services.

If we consider exclusively the **mobile internet activities**, the most popular ones include checking the email, using social media, watching movies/videos, reading news, checking the weather, downloading apps, online shopping, instant messaging, listening to streaming music, online banking, online payments, online gaming and online dating.¹

In this context of smartphones, cloud computing and global connectivity, **customers are really getting used to performing important daily tasks** like checking their bank account balances, buying things or even watching movies in their phones.

The **increasing number of apps** being created has led consumers to easily perform these activities. Apps tend to be preferred over accessing mobile web browsers as the content is usually more uniform and user friendly.

Many of those consumers wonder why health systems still cannot provide similar innovative digital health services.



Source: Statista 2018

¹Statista, 2017, *Leading smartphone and tablet activities*

1. THE HEALTHCARE INDUSTRY | emerging trends (9/12)

As technology evolves, digital solutions are the obvious choices for many industries. The healthcare industry is no exception as there seems to be evidence that consumers are interested in using mobile channels to keep track of their health information.



5. CONSUMER DIGITAL PREFERENCES

Even in healthcare, consumers are increasingly seeking mobile and digital channels, as they are more informed about and more engaged in healthcare decisions because of technology. Consumer demand for digital health applications appears to be strong. McKinsey & Company's latest survey shows that 70% of patients aged between 18 and 65 would be interested in digitally monitoring their health data¹.

Overall, consumers:

- Would rather have a **single app** with everything than having to use more than one app to perform different tasks or access information².
- Have some **privacy concerns** when it comes to the security of their personal data, especially if that data is as sensitive as medical information.
- Want to have apps with **very simple and basic core features that work efficiently**. They want to access information, integrate the app with other channels and the chance to have a real person helping them when the digital service doesn't work properly³.

However, when it comes to **preferences**, these are **very different between old and young people**. Generally, older would rather use traditional channels like the email and websites and obtain information related to the services provided and also about chronic conditions. Unsurprisingly, younger generations are open to new channels of communication such as social media and want to have access to promotions and prevention services³.



¹McKinsey & Company, 2016, *ehealth 2.0: How health systems can gain a leadership role in digital health*

²McKinsey & Company, 2015, *Unlocking digital health: Opportunities for the mobile value chain*

³McKinsey & Company, 2014, *Healthcare's digital future*

1. THE HEALTHCARE INDUSTRY | emerging trends (10/12)

The patient experience represents a crucial component of the healthcare provider quality. It is necessary to continuously add value and improve this experience. Investing in digital solutions and creating a multi channel concept is a step towards a patient centered care.



6. THE EXPERIENCE

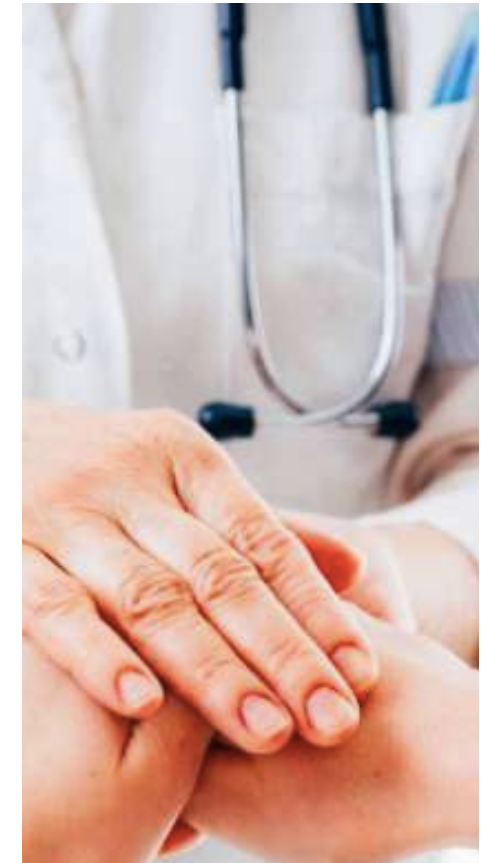
The patient experience involves all the possible interactions that patients have with their health care providers, including communication with doctors, nurses and the staff at the hospitals. It is a **very important element of the healthcare quality** as patient experience involves several aspects of healthcare delivery that patients value highly when they seek and obtain care such as getting appointments on time, having easy access to information and good communication with healthcare providers¹.

Understanding patient experience is a key step in moving towards a **patient centered care** so it must be considered and improved from all possible perspectives. Data shows that some consumers feel like the “existing services don’t meet the needs or they are of poor quality”. For that reason, there is enough space for healthcare providers to come up with **solutions that add value to the costumer journey**, transforming the way value is created, ultimately leading to better client satisfaction and more future visits.

To improve the experience, the healthcare providers must find ways to **be closer to the patients**². Walking towards a more **digital approach that stimulates the connection between the patients and the providers** should be the first step. Investing in IT is becoming a competitive differentiator for healthcare companies as these digital technologies are helping organizations to attract new clients and to offer them more and personalized services and information³.

Apps can help provide more touchpoints and improve the patient experience and well-being as they are very close to the patient. These apps must have a very precise positioning and a defined competitive advantage. For that, it is crucial to understand the costumer’s needs in details, build a simple initial service with a few core features and only then expand the costumer base, continuously improving their experience.

Non-digital channels will still be very important and, for some clients, the more relevant ones. Adding the new digital channels is all about creating a **multi channel concept** where everything is efficiently integrated⁴.



¹U.S. Department of Health & Human Services, 2016, *What Is Patient Experience?*
²McKinsey & Company, 2017, *How health apps are promising to reshape healthcare*
³McKinsey & Company, 2015, *Measuring the patient experience*
⁴McKinsey & Company, 2014, *Healthcare’s digital future*

1. THE HEALTHCARE INDUSTRY | emerging trends (11/12)

Healthcare companies can breakthrough innovation in the industry and quickly deliver products and services while holding down their costs by pursuing digital strategies.



7. DIGITAL HEALTH

A “3rd wave of IT adoption” had already been foreseen five years ago and the healthcare industry was never an exception. As Deloitte’s study stated back in 2014: “the time has come for healthcare systems, payers, and providers to go “all in” on their digital strategies”¹.

Building a digital strategy is more than just having technological devices at the service of healthcare². It requires an entity to look at digital technologies as its strategic assets and not mere utilities. According to the same study, this would imply a **full digitalization of entire enterprises, business models, products and services**. Digital health, as a key for transformation in the healthcare industry, comprises the combination of IT trends with the performance of healthcare and medical acts³.

A comprehensive approach to digitalization will allow companies to deliver their products and services in a quicker and cost-effective way, meeting the priority concerns of the healthcare supply chain.

Artificial intelligence and mobile apps are expected to keep gaining power in the digital health environment and to influence the way healthcare is provided to consumers.

About the triumph of technology in the healthcare industry, Sara Siegel, a Deloitte Partner, tells us:

“Technology alone, such as the smartphone, is not a silver bullet for healthcare. Instead, success lies in the convergence of digital health and human interaction. It also relies on developing partnerships which harness technology, while providing trust-based, patient-centered care; and balances person-to-person engagement with the efficiencies provided by technology.”⁴



¹McKinsey & Company, 2014, *Healthcare’s digital future*

²Harvard Business Review, 2011, *Building a Mobile App Is Not a Mobile Strategy*

³McKinsey & Company, 2015, *Unlocking digital health: Opportunities for the mobile value chain*

⁴Deloitte, 2014, *Healthcare and Life Sciences Predictions 2020*

1. THE HEALTHCARE INDUSTRY | emerging trends (12/12)

As the complexity of the healthcare industry grows, so does the complexity of the solutions healthcare providers have to come up with in order to meet the high expectations of their demanding clients. Mobile healthcare seems to be the path.



7. DIGITAL HEALTH | MOBILE HEALTHCARE

MAIN ADVANTAGES:

1. **Facilitates Doctor-Patient Relationship.** Many of these apps include a platform through which doctors and patients can communicate, share important information and even pursue text-based or video consultations. Informing the doctor about the delay for the appointment is also an example of feature that is already possible to have and that contributes to a fast and effective relationship between doctors and patients.
2. **Increases Patient's Safety.** Instead of having to leave the doctor's office or the hospital with a pile of administrative documents and a handful of recommendations to follow that will eventually be forgotten, the clients can consult the next steps of the treatment through the app to guarantee their safety and fast recovery. Additionally, mobile apps can also send notifications to remind clients to take their medications and to give them information on recommended dosing and side effects of specific medications, for instance.
3. **Saves Patients' Money & Time.** Scheduling appointments directly via app, accessing exams and analysis' results without having to go to the hospital, and attending virtual appointments are a few examples of features available in existing mhealth apps that can help the patient save money and time. Some apps are even able to help with prevention through an early diagnosis and treatment recommendations. Others can measure a client's blood and pulse pressure.
4. **Simplifies Doctor's Job.** mhealth apps designed for doctors include drug and disease databases, high-class monitoring devices, medical calculators, full access to the doctor's hospital agenda, appointment requests and a platform to interact with other doctors of the hospital, allowing the doctor's job to be simplified.

MOBILE HEALTHCARE

Mobile healthcare – mhealth – refers to the use of **mobile communication devices** such as smartphones, tablets, computers, and other devices in the practice of medicine and healthcare.





...mobile applications enable people to track, manage, and improve their health, achieve wellness goals, interact with their health system, and lead better and more productive lives.”





2. THE PORTUGUESE HEALTHCARE SECTOR

2. THE PORTUGUESE HEALTHCARE SECTOR | macro context (1/7)

The Portuguese Economy has been recovering since 2013 and the healthcare industry has followed the recent trend. The private healthcare sector has been growing even faster, namely the 4 biggest players, that have been growing at 9% per year.

In 2017, Portugal followed the **moderate economic growth trend** recorded throughout Europe. From 2018 to 2020, Portugal is expected to maintain its economic growth.

While the overall healthcare industry in Portugal has been growing around 2.3% per year since 2013, the private healthcare market grows at 4% per year. Data shows that the size of the **private healthcare market in Portugal more than doubled between 2000 and 2010**, and kept growing slowly ever since. Even more impressively, if we only consider **the 4 biggest players in the private industry, they have shown a combined growth of 9%** as a result of the market consolidation. JMS alone has been growing annually at 9%¹.

Predictions say that the private healthcare industry will keep growing according to its 4 main drivers of growth:

- the ageing population
- the slow birth rate recovery
- the overcrowded public system
- the accelerating market consolidation

It is important to refer the **dynamic role of National Healthcare Service (NHS) in the healthcare industry**. In 2016, the health Public system received more than 8000 million euros from the Government, and reached total assets of 4234 million euros, which is equivalent to approximately 4 times the combined value of the two leading private healthcare players: José de Mello Saúde and Luz Saúde³. As we will further observe, part of this budget is crucial to provide incentives to the private healthcare industry, mainly through public healthcare subsystems and Public-Private Partnerships (PPP).

The following analysis of the Portuguese healthcare industry was based on **Porter's 5 forces**². The group did not analyze the Threat of Substitutes in detail as the alternative services for healthcare services such as traditional Chinese medicine are quite insignificant in the overall Portuguese panorama³.

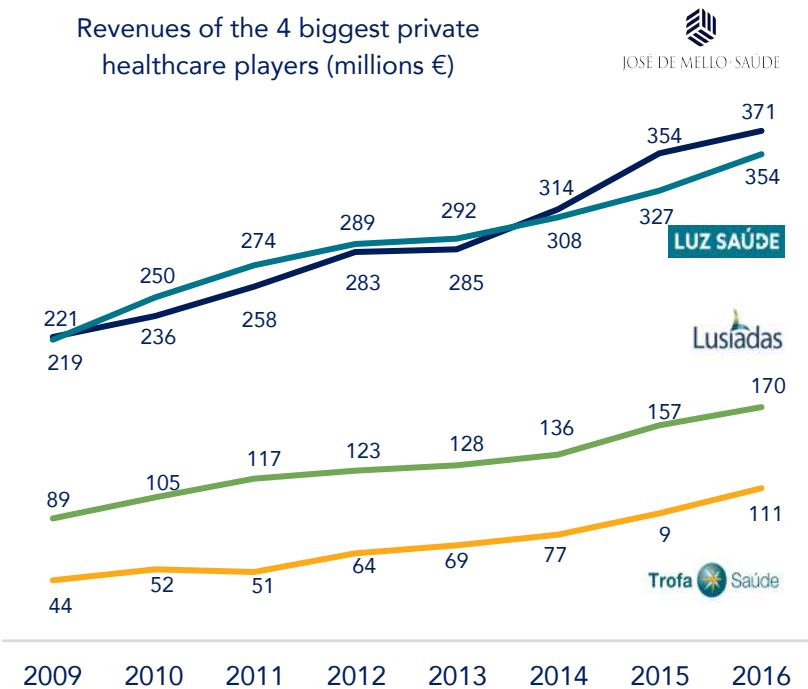
¹ José de Mello Saúde, 2017, *Enquadramento do Mercado de Saúde em Portugal*

² Michael E. Porter, 1985, *Competitive Advantage*

³ Peking University, 2013, *Traditional Chinese Medicine and European Union Law*

Private Healthcare Market Value (2016)

6183 million €



2. THE PORTUGUESE HEALTHCARE SECTOR | competitive rivalry (2/7)

The 4 biggest private healthcare players in Portugal are José de Mello Saúde, Luz Saúde, Lusíadas and Trofa Saúde. They have all been increasing their size as they keep investing in equipment, human resources, quality, new services and new facilities.

The analysis of the private healthcare sector's structure allows the identification of large players. The 4 biggest are José de Mello Saúde, Luz Saúde, Lusíadas and Trofa Saúde.

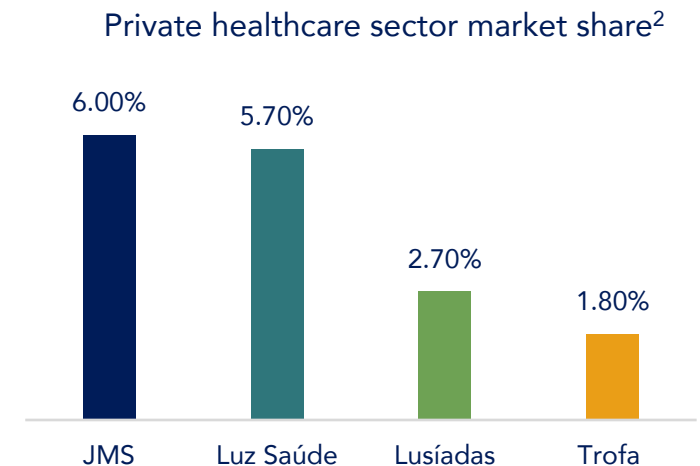
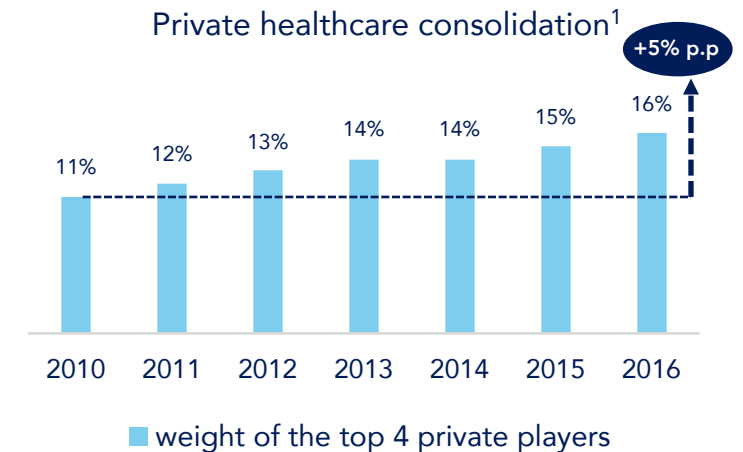
The main private groups have been **investing in equipment and human resources**, as well in the **quality and comfort of their facilities**. Besides, they want to **ensure a customer-focused care**, always aiming at exceeding levels of satisfaction over the services provided in a public sector unit.

In addition, these groups have been expanding their spectrum of activities, namely through the creation of niche units (e.g. senior residences), the creation of outpatient units alongside inpatient units, in addition to the creation or acquisition of units dedicated to complementary diagnostic resources (e.g. Instituto CUF at Porto). Not only they are **increasing their geographical scope of action**, they are also fostering an intra-group "referral network"¹.

In 2016, considering the private healthcare sector, **the 4 largest providers had a combined 16% market share**². JMS led with 6%, followed by Luz Saúde (5.7%), Lusíadas (2.7%) and Trofa Saúde (1.8%).

Besides market shares, it is important to analyze the EBITDA Margins (in % of the total revenues) and understand if it is being affected by the intensity of rivalry among the biggest players. Considering the growth of the private healthcare sector and the increasing revenues of the main players, the **convergence of EBITDA Margins of JMS and Luz Saúde** (the 2 biggest players) to 11%* can be a consequence of the rising competition amongst them, as operational profits are decreasing their weight on total revenues. Concluding, these players are "losing power" and cannot do "what they want" to achieve higher profits.

Although JMS is still the leader in the private health market, the 4 biggest players are following aggressive growth plans until 2020, with projected investments exceeding 500M€, which can represent a challenge for JMS's growth³.



¹ Augusto Mateus & Associados, 2017, *Setor Privado da Saúde em Portugal*

² José de Mello Saúde, 2016, *Construindo o Futuro, respeitando o Passado*

³ José de Mello Saúde, 2017, *Enquadramento do Mercado de Saúde em Portugal*

* Data collected from the Financial Reports of each provider. The other private players' data is not public available

2. THE PORTUGUESE HEALTHCARE SECTOR | **supplier power** (3/7)

Regarding healthcare main suppliers' categories, labor and drugs, we can conclude that healthcare providers do not have much power to bargain with pharmaceutical companies and well-known doctors.

By analyzing the "Suppliers and other account payables" of both JMS and Luz Saúde¹, we can observe a predominant weight of costs related to **clinical fees and suppliers of consumable goods**. As so, it is important to **assess these suppliers' bargaining power** to correctly understand the vulnerability of healthcare providers within the healthcare supply chain.

Clinical Fees – Doctors and Nurses Labor Market

The **number of doctors and nurses in Portugal has been increasing over the last years**. According to INE², from 2006 until 2016, the 38% increase in labor force corresponded to 50000 more doctors and 69000 more nurses. This evolution also reflects the increasing number of healthcare professionals subcontracted by the private sector.

Despite the increase in labor supply, there are **many doctors that have a strong "brand" associated with their names**, as JMS' board mentioned. They are "influencers" that bring clients with them, no matter which provider they work for. When this happens, providers have no alternative but to accept doctors' conditions.

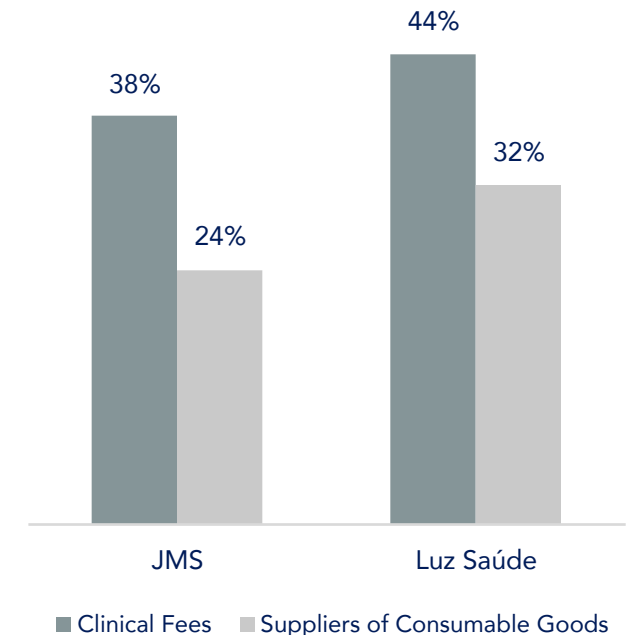
Besides, due to the fact the labor conditions offered by different private healthcare providers are so similar, **doctors don't have any significant switching costs if they decide to work for a different provider**, which increases their power even more.

Consumable Goods – Pharmaceutical Industry

On what concerns the Portuguese wholesales trade market, **drugs are the product line with the highest market share** (11% of total wholesales revenues) and the ones who generate more revenues: 6915 millions euros*. In Portugal, the pharmaceutical supply is led by 5 multinational companies (with a combined 10% market share), followed by 3 Portuguese firms: Bial (3%), Generis (1.9%) and Medinfar (1.3%)².

In fact, until 2012, the generics' segment sold to ambulatory (one of private healthcare providers' main activities together with hospitalization services³) had a higher market share on value than on volume, which reveals current higher prices and a stronger bargaining power⁴.

Weight of Fees and Consumable Goods on Suppliers and other account payables¹



¹ INE, 2017, *Estatísticas de Comércio 2016*

² Infarmed Annual Report, 2015

³ José de Mello Saúde, 2017, *Enquadramento do Mercado de Saúde em Portugal*

⁴ Tribunal de Contas, 2013

2. THE PORTUGUESE HEALTHCARE SECTOR | buyer power (4/7)

The private healthcare industry in Portugal has seen demand increasing in the recent years. More services, quality and insurance solutions are driving customers to use private providers' services.

The **DEMAND** for private healthcare has been increasing in Portugal due to different factors:

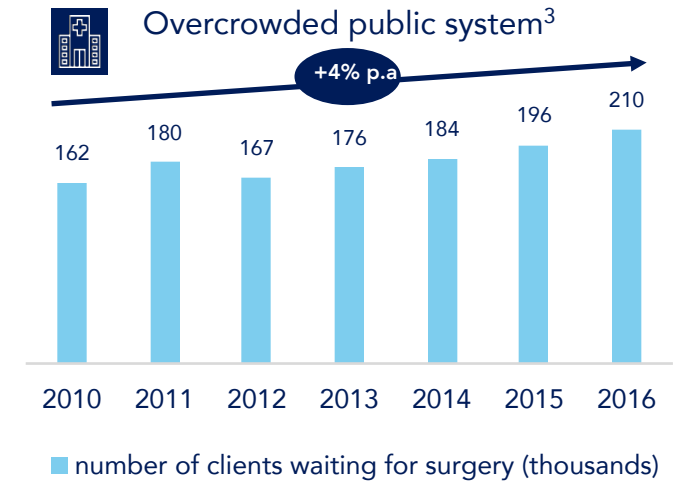
- People are looking for **higher levels of comfort** in the hospitalization services
- Private healthcare is **faster** in providing help to surgical patients
- It is **more convenient** to have access to **high quality results** when complementary diagnosis are performed
- The fact that some specialties are essentially covered by the private sector (e.g. dental medicine)
- Increasing demand for **aesthetic care** (the number of plastic surgeries and well-being treatments has been increasing)

Almost **40% of the Portuguese population**, besides being a beneficiary of the NHS, is also covered by a public or **private health subsystem** (e.g ADSE) or **health insurance** (individual or belonging to a group)¹. Given that this type of financing is usually directed towards private healthcare providers, this increasing number is an indicator of the significant importance the private healthcare sector assumes in the national healthcare panorama.

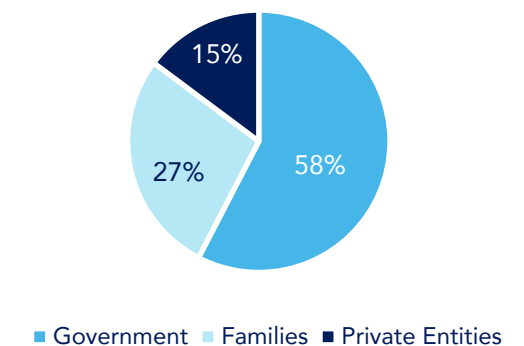
In fact, the Government has a huge weight in healthcare financing. According to INE, **the Public sector covers more than 50% of the total expenses concerning healthcare in Portugal**, which makes private healthcare services more accessible to customers².

Data shows the number of appointments in private hospitals in Portugal increased by 484 thousand from 2015 to 2016, representing 34% of the total number of appointments and confirming the increase in demand².

All in all, we can conclude that the **private healthcare sector's customers have low bargaining power**. Not only the demand for private services is increasing, there are also barriers to perfect competition mechanisms such as the Government intervention and the insurance intermediation. Furthermore, since healthcare represents a primary necessity, its expenses are a first priority to be addressed by families, making customers even more vulnerable to the existing supply rules.



Healthcare Sector Financing in Portugal, 2014 - 2016²



¹ Augusto Mateus & Associados, 2017, *Setor Privado da Saúde em Portugal*

² INE, 2018, *Informação à Comunicação Social*

³ JMS, *Enquadramento do Mercado de Saúde em Portugal*

2. THE PORTUGUESE HEALTHCARE SECTOR | threat of new entry (5/7)

The private healthcare industry in Portugal has also seen the supply increasing in the recent years. The biggest players have been taking advantage of favorable conditions such as higher remunerations, mobility and partnerships to consolidate their position.

On the **SUPPLY** side, the options in the private healthcare industry in Portugal have also been increasing for different reasons¹:

- **Mobility** of health professionals **between the public and private sectors**
- The possibility for health professionals of having **increased remunerations** by providing their services in the private sector
- Incentives for the development of private services. The **partnerships between the public and the private sector** reinforce the complementary and supplementary role of the private sector to the NHS
- Concern for generating and developing solutions to minimize waiting lists
- The system of tax deductions for health expenditures

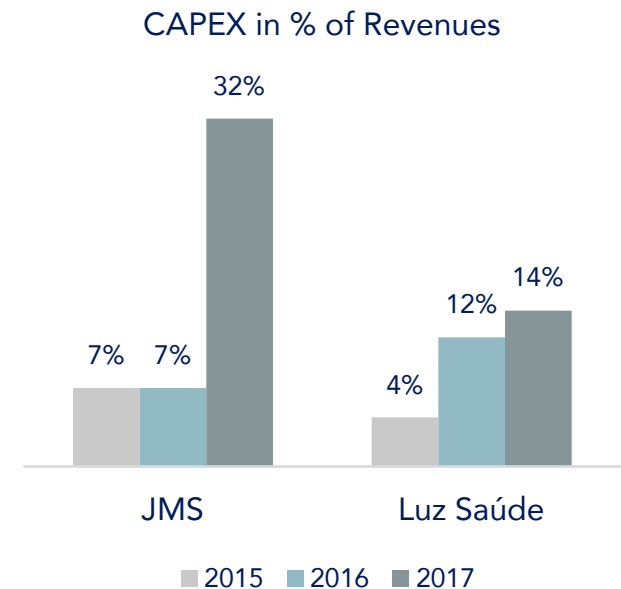
Consequently, **the 4 biggest leaders have expanded their offer** and are responsible for the consolidation of the private healthcare market in Portugal.

The latest statistical report from 2016 shows that the number of private hospitals in Portugal was bigger than the number of public ones for the first time in history. From a total number of 225 hospitals in Portugal, 111 are public and 114 are private².

As stated in the financial reports of the two biggest healthcare private players, the increasing Capital Expenditures (CAPEX) prove the **expansion projects** on fixed assets, namely due to the acquisition of smaller players. In fact, in 2017, José de Mello Saúde and Luz Saúde spent 190 and 50 million euros, respectively, on real state and equipment acquisition*.

Another demanding resource has to do with labor force. Only in 2017, José de Mello Saúde employed 8 058 people and Luz Saúde had a total of 6 009 employees*.

Therefore, we can conclude the **main barriers to the entry of new players** have to do with the required **financing to operate such a costly service** and with the increasing performance of the major players.



¹ Augusto Mateus & Associados, 2017, *Setor Privado da Saúde em Portugal*

² INE, 2018

*Data collected from the Financial Reports of each provider

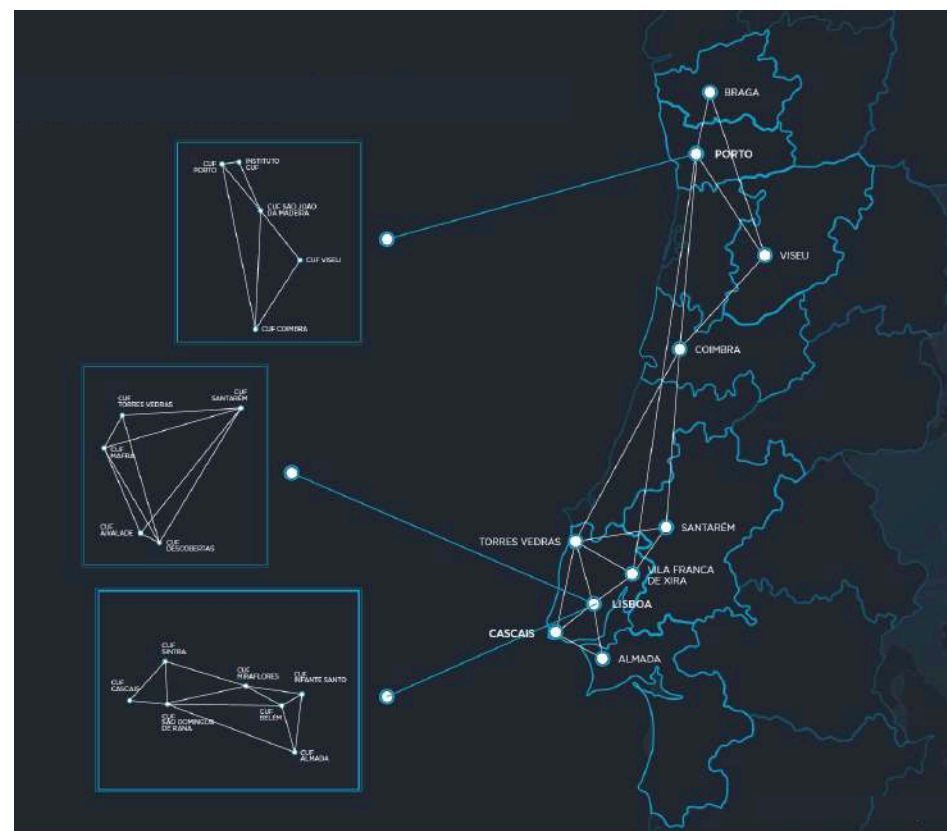
2. THE PORTUGUESE HEALTHCARE SECTOR | geography (6/7)

The Lisbon and Porto Metropolitan Areas are the 2 main locations in Portugal where most of the private healthcare offer is concentrated. José de Mello Saúde is no exception, as most of its CUF units are located close to these regions

The private health sector is highly concentrated around the Lisbon Metropolitan Area (LMA) and the Porto Metropolitan Area (PMA), being supported by some secondary poles in the Center region (mainly in Coimbra). The Lisbon region (led by the LMA) and the North region (led by the PMA) are responsible for 68.2% of the companies, 72.8% of the employed people and 79.3% % of turnover¹.

However, in recent years, there has been a progressive process of **expansion of the private healthcare sector to intermediate cities**, which is expected to continue in the near future.

CUF's penetration in the national market has increased. Still, the biggest competitors are also expected to boost their presence in the metropolitan areas of Lisbon and Porto, which, assuming the population and the health insurance coverage will not increase, might lead to the **potential saturation of the market in a few years**².



Location of JMS' 17 units in Portugal and concentration around Lisbon and Porto metropolitan areas.

¹ Augusto Mateus & Associados, 2017, *Setor Privado da Saúde em Portugal*

² José de Mello Saúde, 2017, *Enquadramento do Mercado de Saúde em Portugal*

2. THE PORTUGUESE HEALTHCARE SECTOR | challenges (7/7)

There are different challenges to be considered in the near future by the healthcare industry: whether they require developing new models, establishing synergies or applying digital trends in the industry, new and more efficient approaches must be followed .

In order to fully understand the different challenges that are happening in the Portuguese private healthcare sector, it is necessary to consider all the possible **factors that are determinant for the competition** between private healthcare providers. This involves analyzing the reputation, clinical excellency, technology, prices and client's satisfaction in many ways¹.

In recent years, as people have become more aware of the importance of measuring their impact and actual results, the concept of effective sustainability was redefined. The new definition reflects the will to maximize patients' satisfaction by offering them a personalized service that also incorporates the need to save resources. In accordance with this principle, the approach being applied internationally is the **value based healthcare** and it prevails over the volume based healthcare. It intends to promote the best results at the lowest cost/price possible. To stimulate this model can represent a big opportunity for the Portuguese private healthcare sector, as long as it is integrated with the NHS.

The possible connection to other areas of activity to **establish synergies** in terms of the clients' well-being can also be an opportunity for the healthcare industry players. One example can be investing in the health tourism.

Overall, the private healthcare system should focus in finding efficient ways to approach the challenges posed by the **ageing population**, the increase in the incidence of **chronic diseases** and the **fast pace of innovation** in the health and digital sciences. The current data predicts that the population over 65 years old in Portugal will represent a quarter of the total population by 2030².

In fact, from a **digital** perspective, there is a **tremendous potential for possible applications** in the healthcare industry, whether related to remote care and monitoring or to the instant integration of each client's relevant information. These would help to streamline procedures and to provide greater alignment between the all the professionals involved. Besides, these applications would contribute to greater levels of efficiency and more quality of the services provided.



¹ Augusto Mateus & Associados, 2017, *Setor Privado da Saúde em Portugal*

² Fundação Francisco Manuel dos Santos, 2012, *Projeções 2030 e o Futuro*

A G E N D A



JOSÉ DE MELLO SAÚDE

DIAGNOSIS

1. THE HEALTHCARE INDUSTRY
2. THE PORTUGUESE HEALTHCARE SECTOR

ANALYSIS

1. JOSÉ DE MELLO SAÚDE
2. MYCUF
3. MYCUF PRO

RECOMMENDATIONS

1. HOW CAN MYCUF INCREASE JMS' EFFICIENCY?
 - 1.1. MyCuf Client Development
 - 1.2. Adoption & Usage Plan
 - 1.3. MyCuf PRO

FURTHER ANALYSIS

1. MEASURING IMPACT
2. CHALLENGES
3. IMPLEMENTATION PLAN



1. JOSÉ DE MELLO SAÚDE

1. JOSÉ DE MELLO SAÚDE | the organization (1/5)

José de Mello Saúde is one of the companies owned by José de Mello Group. The group built its first hospital in 1945 with the purpose of serving the employees and relatives of their chemical corporation CUF, founded in 1865.

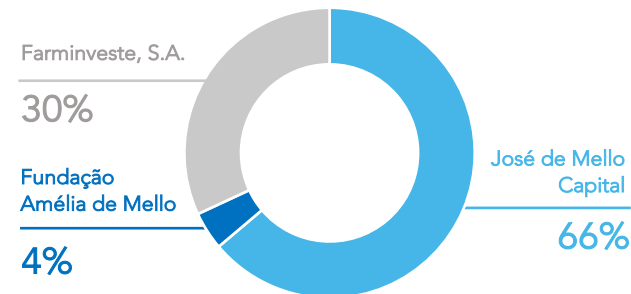
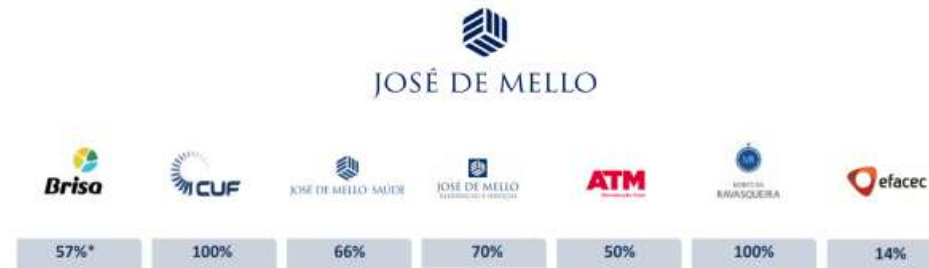
THE GROUP

José de Mello Group has a portfolio of 7 companies being the majority shareholder of 6 of them. José de Mello Saúde is 66% owned by the Group, with share capital amounting to 53 million euros in 2017. The other 30% of the 10.6 million shares of the company belong to Farminveste, S.A. and 4% to Fundação Amália de Mello.

THE COMPANY

José de Mello Saúde has a set of companies and complementary groups of companies operating in the healthcare industry. José de Mello Saúde, S.A. holds shares in the companies where it develops auxiliary activities and shares in companies that are responsible for the management of each of the operational units, hospital and outpatient units. Through binding instructions and the exercise of its shareholder rights, José de Mello Saúde, S.A. defines the strategy and the economic, financial and social planning of its set of companies and complementary groups of companies.

The Board of Directors responsible for managing José de Mello Saúde delegates the daily management of the company to an Executive Committee, which is supported by the shared services, corporate departments and a set of advisory bodies. Each subsidiary company's Board of Directors contains members of José de Mello Saúde's Executive Committee.



The hospital and outpatient units are grouped in two Coordinating Committees, CUF and PPP. The first one - CUF - is divided in three clusters: **Descobertas, Tejo and Norte.**

With the creation of CUF Services in 2017, which include the Logistics, Operations and Customer departments, the goal of having the Coordinating Committees of CUF and PPP implementing a single operating model in terms of standardization, operational control, risk management and strategic alignment was reinforced.



1. JOSÉ DE MELLO SAÚDE | the organization | hard elements (2/5)

JMS' strategy and goals are in line with its recently changed structure and the systems used throughout all the units and services provided.

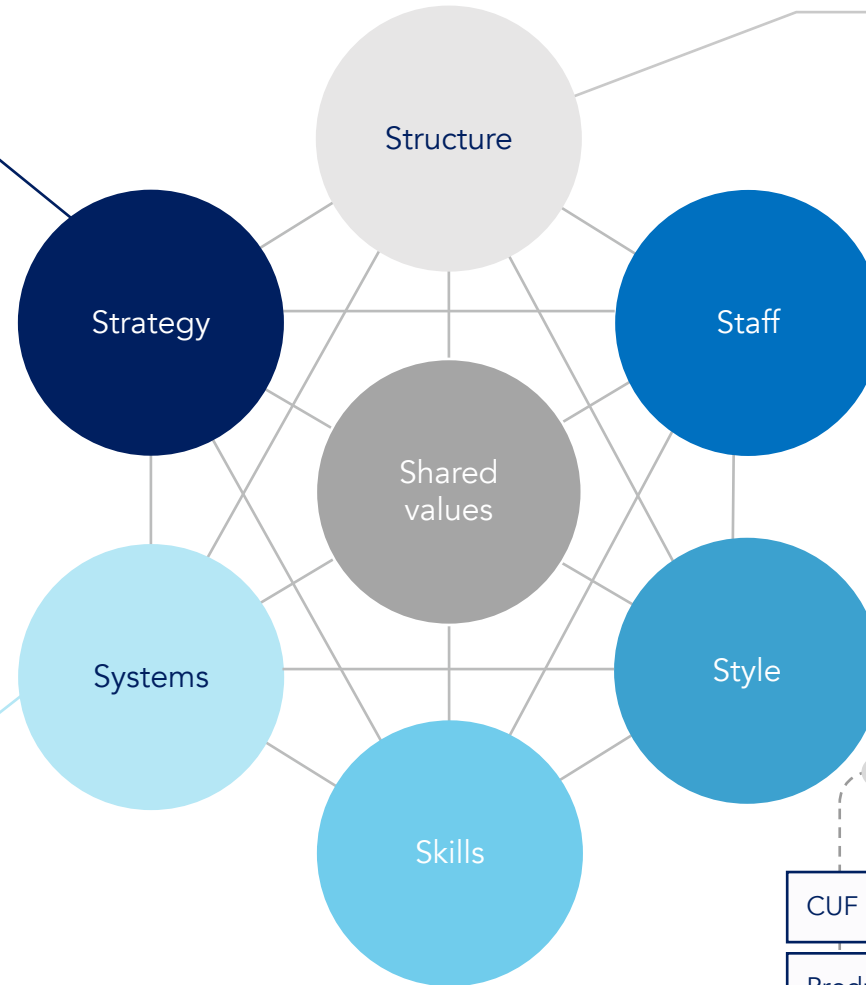
Strategy

- Reinforce the leadership in the Portuguese market and explore opportunities for international expansion.
- Highlight the clinical quality as the focus of its value proposition.
- Assure an outstanding experience for the client with a consistent service throughout all the CUF network
- Develop a digital relationship with clients.
- Guarantee the uniformization in the control of consumptions, in the procedures and in the optimization of human resources management.
- Attract and retain the best professionals, developing a culture of excellence and meritocracy .

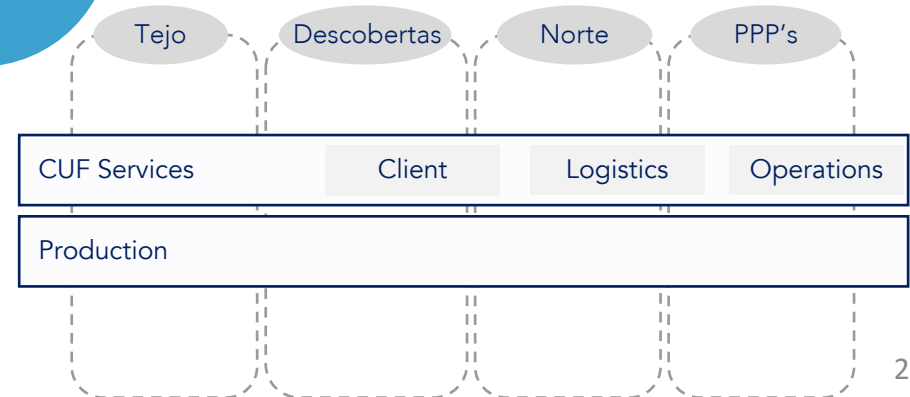
Systems

JMS uses different information systems to conduct its activities:

- SAP: for HR Management
- Glint: for the FO & CC
- Contact Go: for the CC



Structure

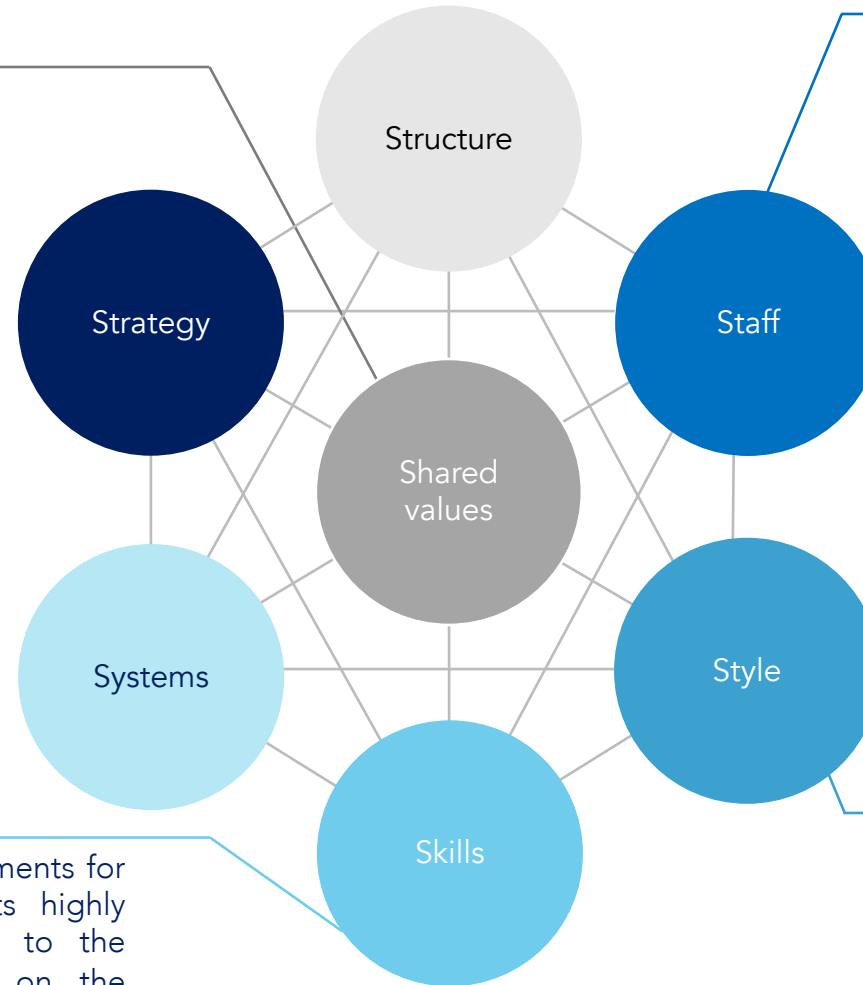


1. JOSÉ DE MELLO SAÚDE | the organization | soft elements (3/5)

Employees at JMS are carefully chosen as they must share the company's core values and have the right skills and attitude. At JMS, everyone can contribute to the success of the company.

Shared Values

- Respect for dignity and well being of a person
- Human development
- Competence
- Innovation



Staff

- Current employees are evaluated on their development and JMS is focused in retaining those that demonstrate growth potential and that are committed to José de Mello Saúde's mission and values. Future employees are selected based on a process of identification and evaluation. José de Mello Saúde's Human Resources are responsible for the flow of this process in an integrated way.
- José de Mello Saúde has been developing programs for its employees and is heavily investing in talent management. In 2017, José de Mello Saúde had a total of 8058 employees and gave a total of 133314 training hours, which corresponds to an average of 16.54 hours per employee.

Skills

- The determination and rigor are essential requirements for the Group José de Mello. The Group targets highly competent and qualified people which leads to the execution of well-structured decisions, based on the assumptions of timing, value and quality inherent to all the companies.

Style

- **Democratic Leadership:** at José de Mello Saúde, employees are involved in making decisions. This kind of leadership is centred on subordinates' contributions. The democratic leader has the final responsibility, but he or she delegates authority in a team, who determine work projects.



2017 in numbers

2.4M CONSULTATIONS

658K EMERGENCIES

1.1M ADMISSIONS

93K SURGERIES

828K IMAGING EXAMS

7.84K BIRTHS

EMPLOYEES
8.058

HEALTHCARE UNITS
19

IMPATIENT BEDS
1.543

OPERATING THEATRES
92

CONSULTATION ROOMS
1.165

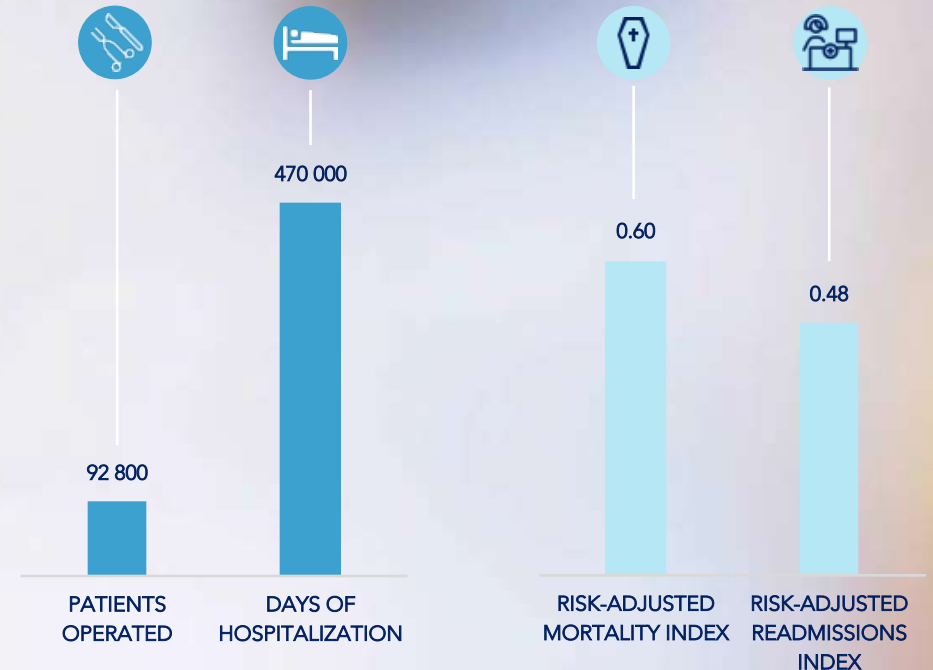
DOWNLOADS APP MYCUF
345 THOUSAND

CALLS ANSWERED BY THE CONTACT CENTRE
3 MILLION

INSTALL IT NOW



saudecuf.pt



1. JOSÉ DE MELLO SAÚDE | 2017 financial performance (5/5)

2017 was characterized by a strong operating and financial performance for José de Mello Saúde. The company maintained a sustained increase path across its healthcare activity in the different fields of action. A 9.9% growth in the private activity was recorded over 2016 and a 4.4% growth in the public-private sector, leading to a total operating income of 637.4 million euros.

RELEVANT FACTS:

- José de Mello Saúde is the **biggest national player in the healthcare private sector**. Its network covers Portugal from Almada to Braga and, in 2017, it was reinforced with the opening of CUF São João da Madeira Clinic and the purchase of Clínica Particular de Coimbra, which is now CUF Coimbra Hospital.
- The **operating income of 637.4 million euros presents a growth of 8.7% when compared to 2016** and an increase of 9.9%, over the same period, in the private sector and 4.4% in the public-private sector.
- Although EBITDA registered an increase of 5.26% versus 2016, driven by the growth in the healthcare activity, and EBIT increased 2.65% from 2016 to 2017, both **EBITDA and EBIT margins decreased by 4 percentage points (0.4 pp)**, since the **fixed costs resulting from the opening of two new units** in the past two years have not yet been compensated by the increase of operating income, resulting in a net profit decrease of 1.1 million euros.
- Total assets increased by 242.5 million euros in behalf of an increase in the tangible fixed assets, amounting a total of 745.4 million euros.
- The performance of JMS' net financial debt translates the strong investment effort on the real estate assets' acquisition and in the multiple expansion works in course. Hence, José de Mello Saúde created the conditions to extend their activity to Leiria and Sintra, where they acquired land for the construction of the future CUF Leiria and CUF Sintra hospitals. The company is currently expanding CUF Descobertas Hospital and building the future CUF Tejo Hospital, in Lisbon, an investment of 100 million euros.

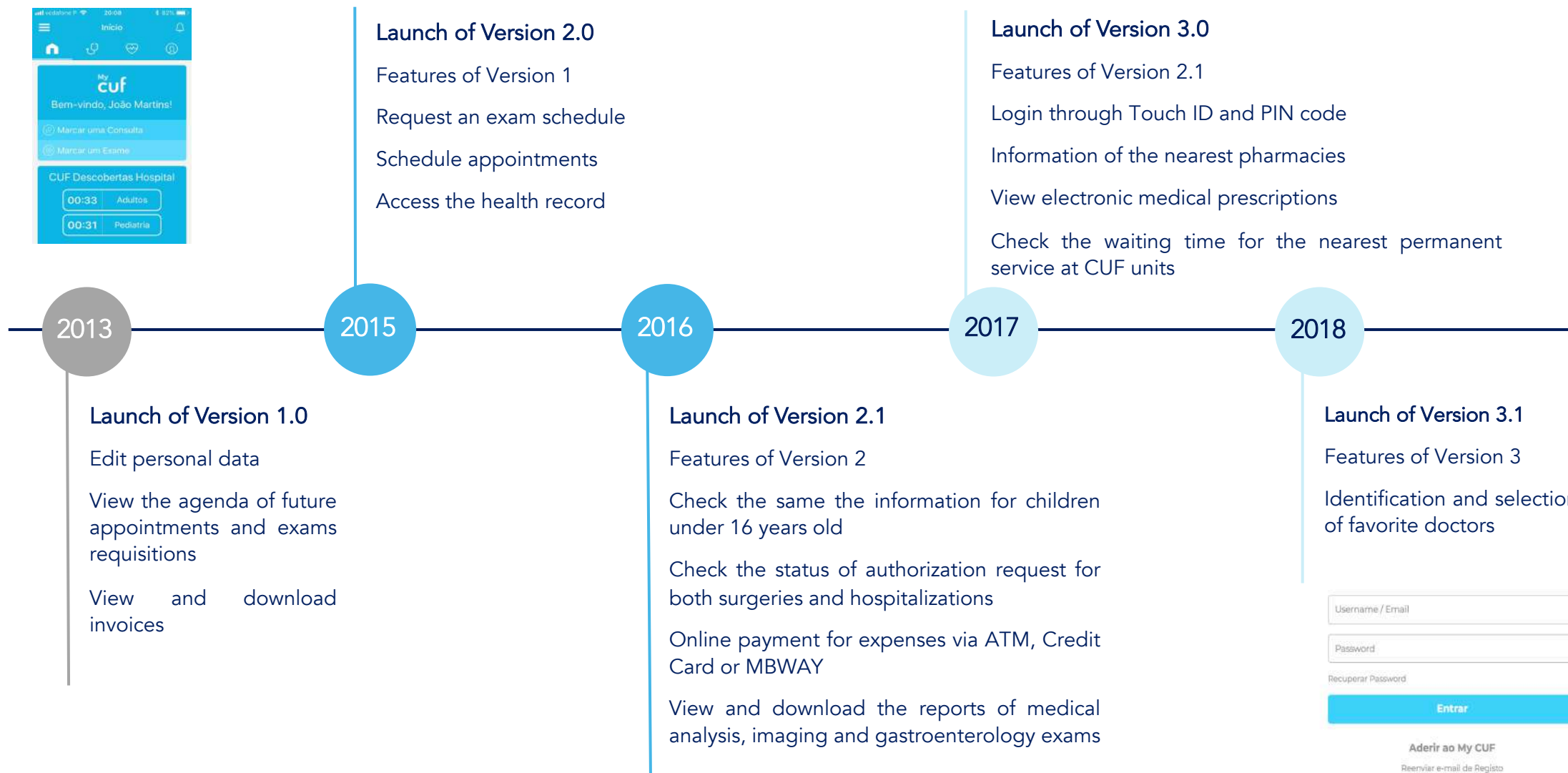
(MILLION EUROS)	2017	2016	GROWTH (%)
REVENUES	637.4	586.3	8.72
OPERATING COSTS	-565.4	-517.9	-9.2
EBITDA	72	68.4	5.26
EBITDA MARGIN	11.3%	11.7%	-0.4
EBIT	42.6	41.5	2.65
EBIT MARGIN	6.7%	7.1%	-0.4
FINANC. RESULTS	-10.5	-8.9	-18
TAXES	-8.8	-8.4	-4.3
NET PROFIT	23.3	24.2	-3.8
(MILLION EUROS)	2017	2016	GROWTH (%)
INVESTMENT IN R&D	1.8	3	-40
(MILLION EUROS)	2017	2016	GROWTH (%)
NET FINANCIAL DEBT	338.6	154.9	118.6

2. MYCUF



2. MYCUF | evolution (1/8)

Created in 2013, MyCuf is an online personal area that allows an efficient and convenient interaction between the clients and CUF's administrative services. This free app includes features that allow clients to schedule appointments, download exams' results and pay.



2. MYCUF | today (2/8)

Designed to be an efficient tool for JMS' administrative tasks, MyCuf reached 310730 active accounts by the end of 2017, amongst the universe of 2 million customers¹

MAIN FOCUS

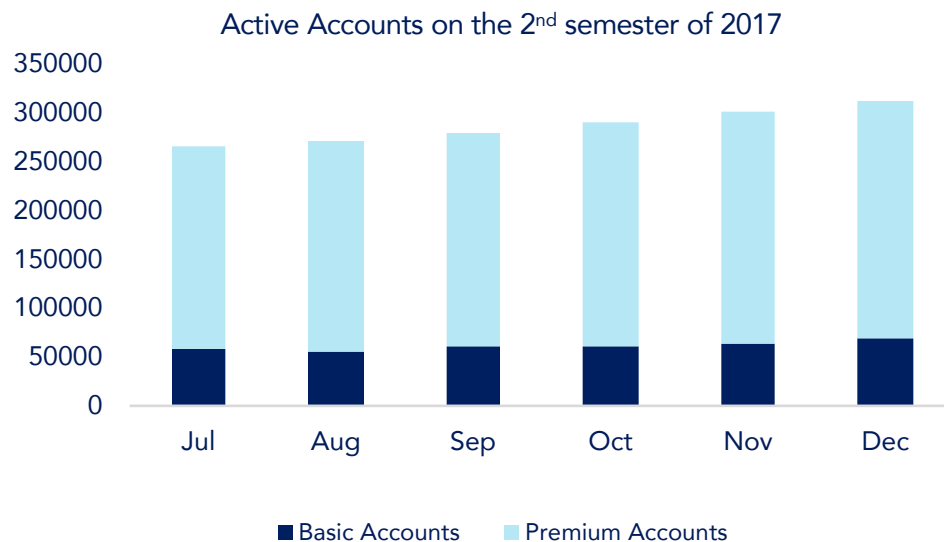
Quoting the client, **"MyCuf was designed to increase efficiency in CUF's administrative services"**. By substituting the traditional channels that are highly dependent on human resources such as the Contact Center, with approximately 271 Full-Time Equivalents (FTEs), and the Front Office, with almost 784 FTEs, MyCuf can represent an efficient source of costs savings.

ADOPTION

There are two types of accounts on MyCuf that differ on the type of registration:

- **Basic (Online)** – By submitting an online form², the customer can only use MyCuf to schedule appointments, request an exam schedule and view the agenda of future appointments and exams requisitions.
- **Premium (Physical Presence)** – Alternatively, in order to have full access to MyCuf, the client can go physically to the Front Office at any CUF facility, confirm his/her identity by presenting an identity card and provide some extra personal details

By the end of 2017, the accumulated number of active MyCuf accounts was 310730. From these, 22% were Basic profiles and the remaining 78% were Premium. Looking exclusively to the second semester of 2017³, the digital channel gained 45 730 new accounts, 11 678 Basic and 34 052 Premium. Nevertheless, MyCuf's internal team failed to reach its annual goal of having 325 000 active accounts. As we will further explore, **the new goal for 2018 is to reach 500 000 active accounts** by the end of the year.



Source: MyCuf report, December 2017

TOTAL ACTIVE ACCOUNTS ON MYCUF	310 730
BASIC ACCOUNTS	69 678
PREMIUM ACCOUNTS	241 052

Source: MyCuf report, December 2017

¹2 million customers from 2003 until 2017 all CUF units. Values reported by Customer Relations Department of JMS

²This form requires the following client information: Name, email, mobile number, date of birth and tax identification number.

³The team did not have access to data for a bigger period of time..

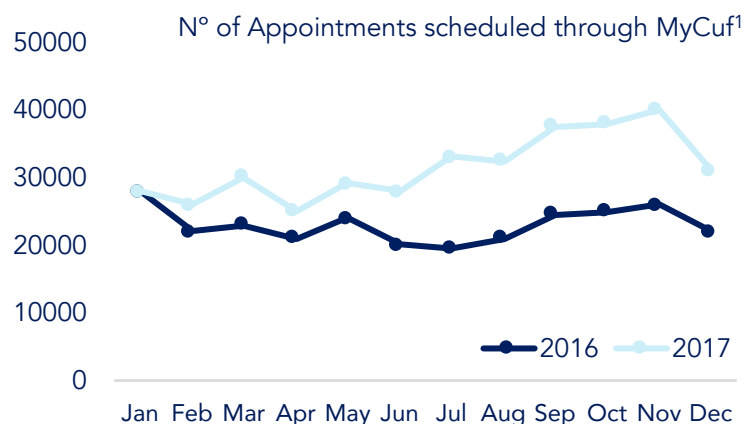
2. MYCUF | today (3/8)

Accessible via web or mobile app, the utilization of MyCuf has grown from 2016 to 2017. Still, there are some technical issues reported by users that damage its credibility and potential as an efficient tool.

USAGE

Considering the number of appointments scheduled¹ in 2017 and comparing the same information for 2016, we can observe **an increase of almost 40% in the total number appointments scheduled through MyCuf platforms**, either the website or the mobile app.

The team was only able to have access to the information concerning the number of scheduled appointments. It was not possible to obtain data to measure the usage levels of all the other features that active clients may or not be using.

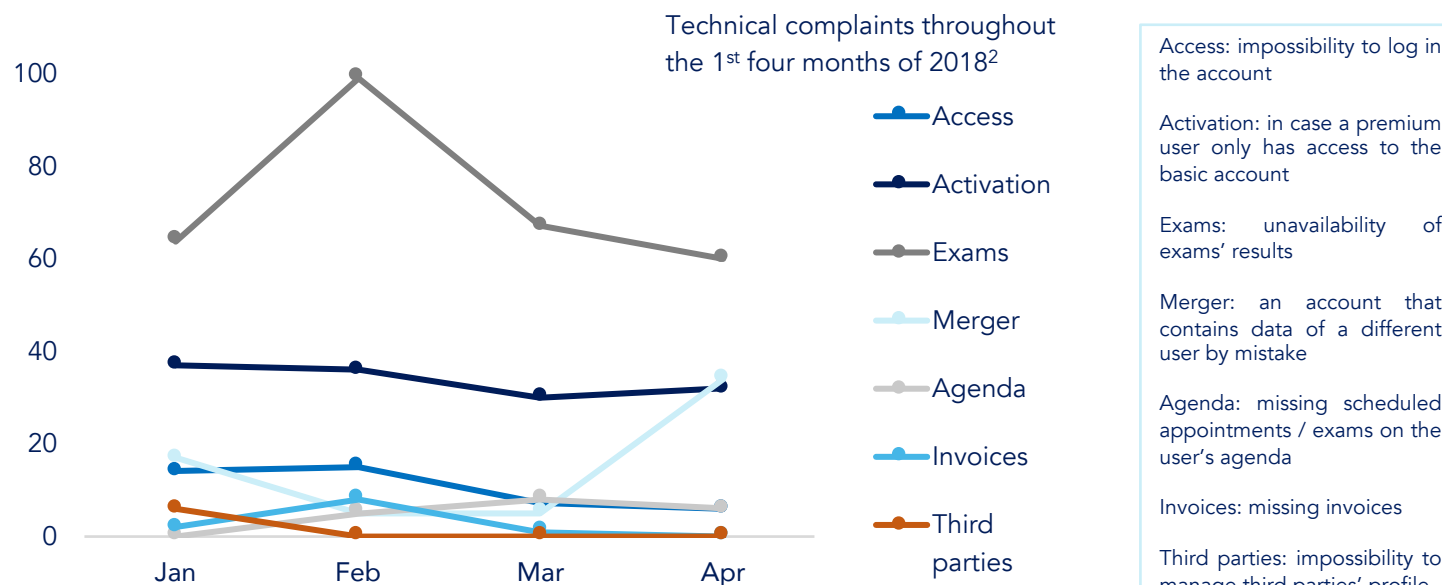


Source: MyCuf report, December 2017

MAIN SUPPLIER & COMPLAINTS

Since 2016, Tekever is the software company responsible for developing MyCuf. As the Client is satisfied with Tekever's services, we did not analyze this component. Yet, there are some technical complaints diagnosed by users that must be solved together with Tekever's help.

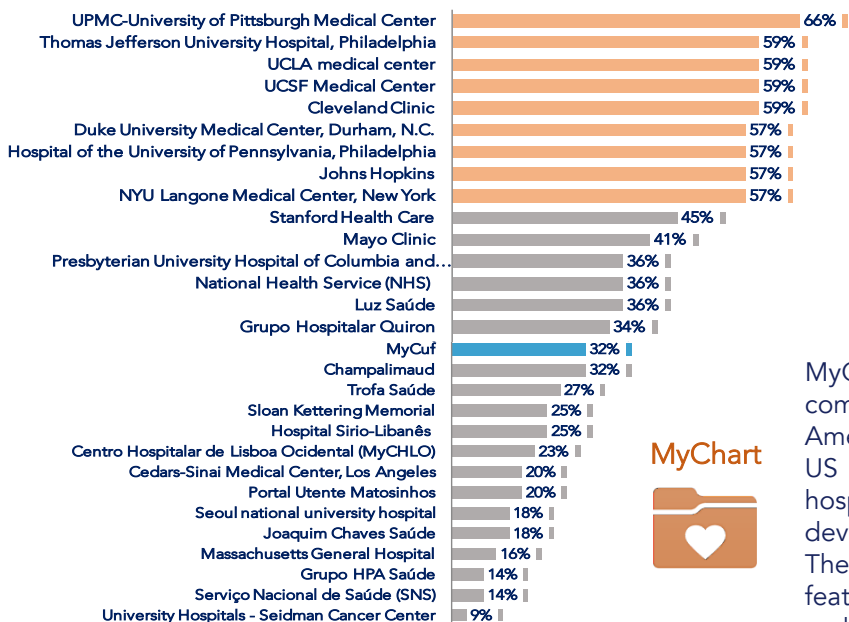
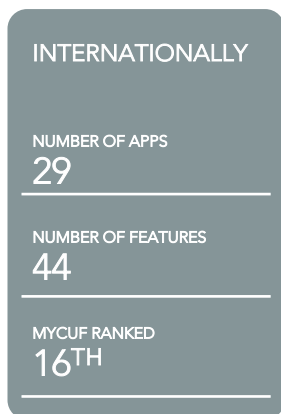
From the 564 complaints collected from the beginning of January till the end of April 2018, more than **50% are related to the unavailability of exams' results on MyCuf²**. Approximately other 25% of the complaints have to do with problems in accessing premium accounts after the required physical presence registration. These kind of issues affect MyCuf negatively as they impact both the customer experience and JMS' cost savings.



Source: MyCuf report, December 2017

2. MYCUF | market positioning (4/8)

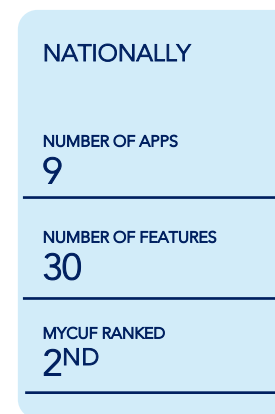
MyCuf is ranked 16th in the worldwide ranking considering the 29 apps benchmarked (and all the 44 features) and 2nd among the 9 national mobile healthcare apps (and a total number of 30 features). This ranking was conducted based on the analysis of 37 providers, from which 8 were eventually excluded.



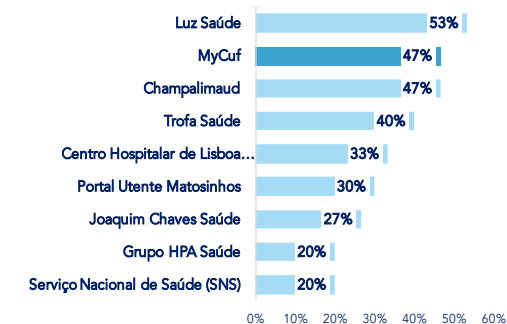
- Considering the sample of 29 apps benchmarked worldwide, **MyCuf was ranked 16th**, offering 32% of the total features.
- This is an **impressive position for JMS' app**, as 9 out of the 15 apps ranked above MyCuf either use MyChart as the "mother-app" or integrate MyChart's features within their own app, leading to a tremendous increase in the amount of features offered.

MyChart is an app developed by EPIC, a healthcare software company. It contains 25 features commonly used by many American healthcare providers. The app is very successful in the US healthcare industry due to the easiness of integration with hospital management software, as it is distributed by the same developed.

The features offered by MyChart represent more than 56% of the features benchmarked, which explains why the top 9 healthcare mobile apps present high (and similar) percentages.

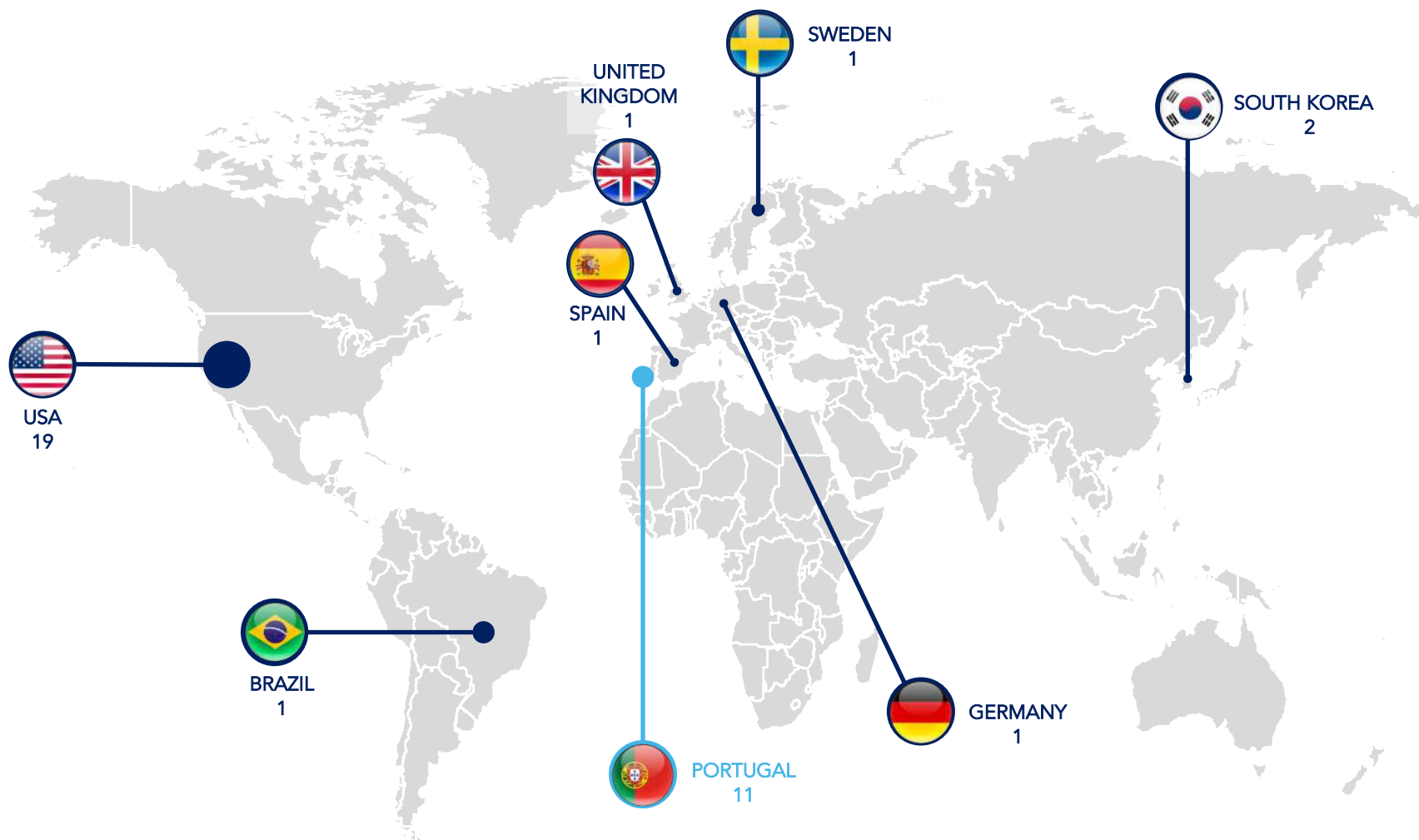



- Nationally, there are 9 healthcare providers offering their clients the possibility of being served through a mobile app.
- MyCuf is ranked 2nd**, together with Fundação Champalimaud, offering 47% of the total existing features among the healthcare providers.




2. MYCUF | market positioning | benchmark (5/8)


A benchmark was conducted so as to conclude on how healthcare providers are meeting the growing demand of their clients for technological, efficient and productive tools and on how MyCuf is positioned among other mhealth apps. 37 healthcare providers appear to be embracing the challenge of the future: providing mhealthcare apps as a vital support to its services and products.




 USA emerges as the mobile healthcare leader worldwide with at least 19 healthcare providers offering their clients mobile healthcare apps.

 Portugal comes right after USA, with 11 healthcare providers owning a healthcare mobile app.







 South Korea was the only Asian country outstanding for having 2 healthcare services providers using *mhealthcare*.

 In the UK, one healthcare provider with a mobile app was found - National Health Service (NHS). However, NHS offers more than 46 healthcare mobile apps serving different purposes and medical needs.

 Brazil, Germany, Sweden and Spain are still taking the first steps towards the *mhealthcare* system. In each of these countries, only one healthcare services provider seems to own a healthcare mobile app.

2. MYCUF | market positioning | benchmark (6/8)

Although 37 healthcare providers were identified in the benchmark, further analysis will only cover 29 of them. 8 apps were excluded from the benchmarking due to three reasons:

<p>App's purpose specificity</p>	<p>The apps found are functional just for the performance of specific tasks. For example, Cruz Vermelha's app is a first-aid-app.</p>	<table border="1"> <thead> <tr> <th>App</th> <th>Country</th> </tr> </thead> <tbody> <tr> <td> ASKLEPIOS</td> <td>GERMANY</td> </tr> <tr> <td> BRIGHAM AND WOMEN'S HOSPITAL</td> <td>USA</td> </tr> <tr> <td> CRUZ VERMELHA PORTUGUESA</td> <td>PORTUGAL</td> </tr> </tbody> </table>	App	Country	 ASKLEPIOS	GERMANY	 BRIGHAM AND WOMEN'S HOSPITAL	USA	 CRUZ VERMELHA PORTUGUESA	PORTUGAL
App	Country									
 ASKLEPIOS	GERMANY									
 BRIGHAM AND WOMEN'S HOSPITAL	USA									
 CRUZ VERMELHA PORTUGUESA	PORTUGAL									
<p>App redirects to a website</p>	<p>Apps have different menus and easy-access tools that always redirect to the entities' website. It is not possible to perform any task through the apps themselves.</p>	<table border="1"> <thead> <tr> <th>App</th> <th>Country</th> </tr> </thead> <tbody> <tr> <td> BARNES JEWISH Hospital <small>HealthCare</small></td> <td>USA</td> </tr> <tr> <td> Indiana University Health</td> <td>USA</td> </tr> <tr> <td> Lusiadas Saúde</td> <td>PORTUGAL</td> </tr> </tbody> </table>	App	Country	 BARNES JEWISH Hospital <small>HealthCare</small>	USA	 Indiana University Health	USA	 Lusiadas Saúde	PORTUGAL
App	Country									
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<p>Linguistic barriers</p>	<p>These apps could not be analysed as it was difficult to perceive their features due to linguistic barriers.</p>	<table border="1"> <thead> <tr> <th>App</th> <th>Country</th> </tr> </thead> <tbody> <tr> <td> KAROLINSKA UNIVERSITY HOSPITAL</td> <td>SWEDEN</td> </tr> <tr> <td> Yonsei University</td> <td>SOUTH KOREA</td> </tr> </tbody> </table>	App	Country	 KAROLINSKA UNIVERSITY HOSPITAL	SWEDEN	 Yonsei University	SOUTH KOREA		
App	Country									
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 Yonsei University	SOUTH KOREA									

United States of America will therefore bring forward to the analysis 16 healthcare services providers, Portugal comes with 9, South Korea only 1 and both the Swedish and German healthcare services providers will not be considered.

2. MYCUF | market positioning | benchmark (7/8)

29 healthcare providers were analysed. For a matter of analysis, National Health Service (UK) and Quirón Salud (Spain) were allocated to the "Rest of Europe" region as well as all the non-Portuguese/European/American to the "Rest of the World".



2. MYCUF | market positioning | benchmark | methodology & limitations (8/8)

As we conducted the benchmarking, we faced some limitations over the analysis of other apps' features. These had mainly to do with privacy policies adopted by health providers that unable further experience from non registered customers.

METHODOLOGY

National and international* research on the major health providers according to:

- Previous benchmarks developed by the internal MyCuf team.
- Open research on Google about the biggest healthcare groups and some smaller hospital units.
- Awards on the *mhealth and* innovation categories.

*Internationally, the US health providers represent the majority.

Collection and exhaustive study of apps and its functionalities

- Study of access methods to the apps and analysis of the registration process.
- Use and exploitation of the apps that were available for download.
- Description of each app (characteristics, features and potential).
- When inaccessible, collection of information on the AppStore and on YouTube regarding the features of the apps.

Organization and schematization of information collected by categories:

- Segmentation of features by categories.

Statistical analysis of the functionalities' frequency:

- Analysis of the features' frequency amongst the sample of apps.
- Elaboration of rankings of features and apps.

LIMITATIONS

Download & Linguistic barriers

- Not all the apps identified were available on the Portuguese AppStore for download. This made it difficult to explore in detail all of the apps' features and characteristics.
- Blocked or limited access to a few apps as it was impossible to login. There was a need for gathering basic information on the apps' general features and characteristics through the descriptions presented in the AppStore or other websites.
- There were some linguistic barriers concerning a few Chinese and South Korean apps.

Registration

- Although in some cases the app was available for download, to explore its features one would need to introduce personal data and make a real registration. For these apps, the team was not available to gather complete information on their functionalities.

Lack of perfect information

- Unlike the case for MyCuf, the team did not have access to perfect information regarding some apps' features, characteristics and procedures and so the evaluation and posterior ranking might have been unfair for these apps.
- A few procedures or features might have been undiscovered or may have not been exploited to the last step as they required demanding a real service delivery.
- The benchmarking conducted did not analyze other industries apart from the health industry gives its specificities.
- In the case where the health providers use the app MyChart, it was assumed that all the apps considered offer the same functionalities comprised by MyChart.

3. MYCUF PRO



3. MyCuf PRO | the idea behind the new app (1/1)

Creating a digital tool personalized to each doctor can be a powerful solution to improve the efficiency and quality of the services provided. Doctors will be able to participate more actively in administrative tasks if this Bring Your Own Device (BYOD) strategy is implemented.



Bringing a Digital Hub to doctors: Our client challenged us to come up with ideas for a new app that would help doctors perform some administrative tasks. MyCuf PRO would be a new version of MyCuf but for doctors' exclusive use.



The concept: The focus of the new app should be to provide an extremely simplified way for doctors to communicate with the units' administrative services and allow processes to be faster. Doctors can have a more active role in performing some tasks if they are very easy to perform through the app. A few examples may include managing appointments, the simplification of holidays' scheduling, having access to their overall agenda, their individual fees and even to extra information. In fact, MyCuf PRO would almost be like a personal assistant to doctors, available on their smartphones' mobile app.



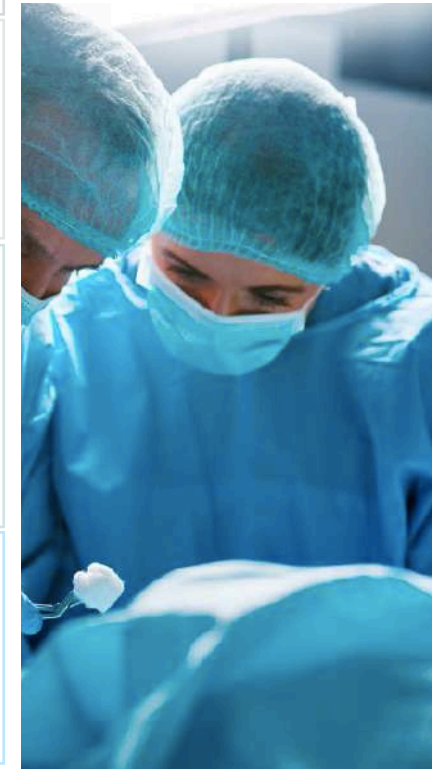
Current situation at CUF: CUF doctors do not have access to any digital platform that allows them to manage administrative services. They are heavily dependent on their personal secretaries, on the contact center and even on the units' front offices. Qualitative in-depth interviews to doctors led the group to conclude that it would be useful to develop a more efficient and simpler way to make doctors' lives easier. It is important to mention that the app MyCuf PRO will not be extended to associated doctors' use*. The team met with the Head of CUF's Associated Doctors Network and understood that associated doctors have different needs that would require a totally different app.



Understanding the rationale behind this kind of service: A recent study revealed that 80% of organizations that adopted BYOD programs increased its productivity, with employers recognizing the rise of revenues. In fact, these results are correlated with employee satisfaction. The inquired business leaders identified BYOD strategies as a relevant criteria on employee satisfaction. Therefore, it is important to consider employees' insights before developing BYOD programs. On a global scale, over 71% of companies worldwide changed at least one process to adapt BYOD¹.



MyCuf PRO could be a BYOD solution. Through the mobile app, its features would improve productivity, service quality and employee satisfaction. The Information Systems Direction advised the team to consider MyCuf PRO as a separate channel from the existing client version of MyCuf**.



¹ Communications of the Association for Information Systems, 2014, *Current Status, Issues, and Future of Bring Your Own Device (BYOD)*

* Dr. Daniel Teixeira (Head of Cuf's Associated Doctors' Network) did not think the service would be useful, regarding associated doctors' needs.

**Dr. Luís Ferreira, from the Information Systems Direction, confirmed the intention to develop MyCuf PRO as a separate channel from the app MyCuf for clients.

A G E N D A



JOSÉ DE MELLO SAÚDE

DIAGNOSIS

1. THE HEALTHCARE INDUSTRY
2. THE PORTUGUESE HEALTHCARE SECTOR

ANALYSIS

1. JOSÉ DE MELLO SAÚDE
2. MYCUF
3. MYCUF PRO

RECOMMENDATIONS

1. HOW CAN MYCUF INCREASE JMS' EFFICIENCY?
 - 1.1. MyCuf Client Development
 - 1.2. Adoption & Usage Plan
 - 1.3. MyCuf PRO

FURTHER ANALYSIS

1. MEASURING IMPACT
2. CHALLENGES
3. IMPLEMENTATION PLAN



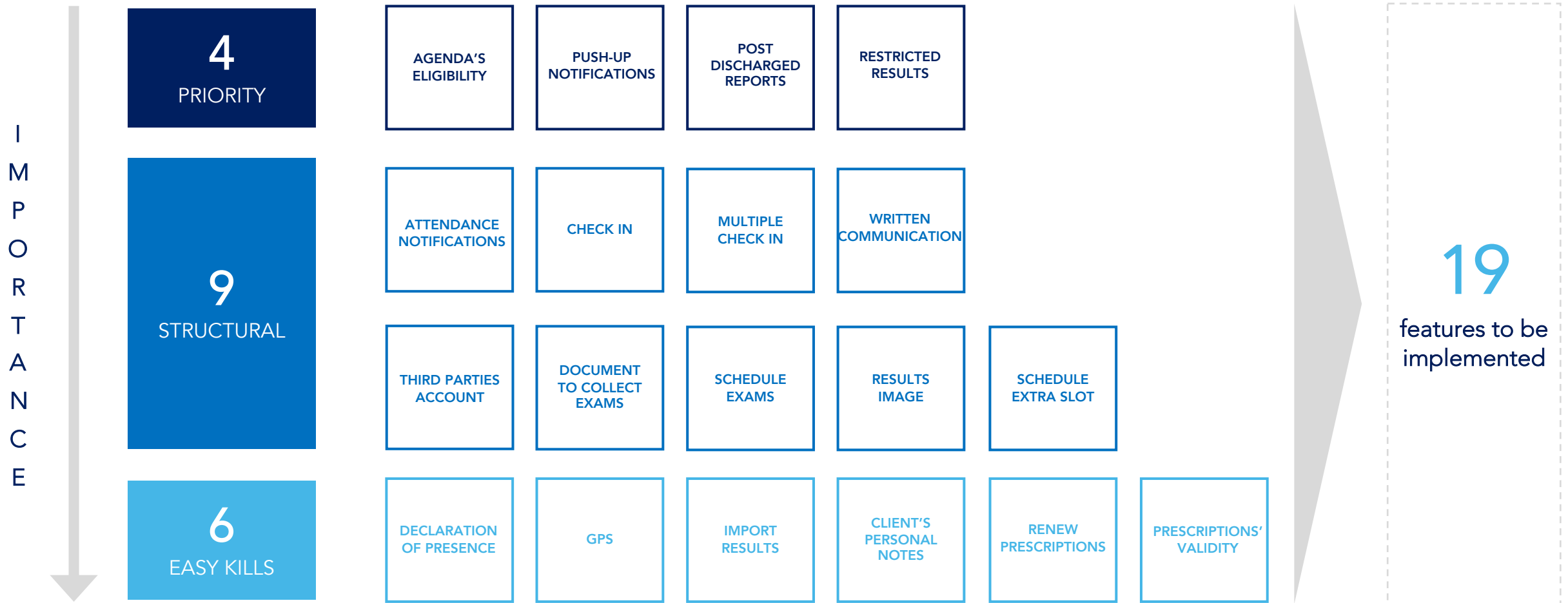
1. HOW CAN MYCUF IMPROVE JMS' EFFICIENCY?



1.1. MYCUF DEVELOPMENT

1.1. MYCUF DEVELOPMENT | new features | recommendations (1/17)

The team recommends adding 19 new features to the existing MyCuf version. We believe this will allow the app to **provide a better customer experience**, through an effective response to customers' needs and facilitation of the their tasks, ultimately raising customers' satisfaction. It will also add value to the current version of the app.

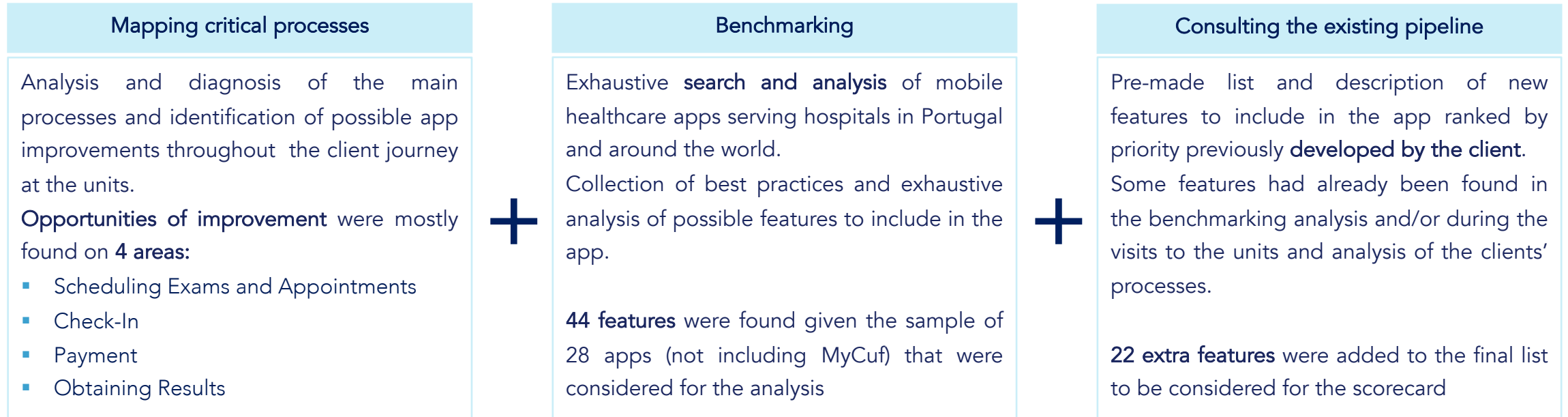


These features were identified, evaluated and classified into different categories following a methodology that will be presented from here onwards.

1.1. MYCUF DEVELOPMENT | new features | sources (2/17)

Considering the initial diagnosis of the critical processes performed at the units and the extensive research of mhealth apps' best practices (benchmarking), there are reasons to believe that MyCuf can be improved by broadening the number of features provided to its clients.

The features proposed emerged from the following 3 steps:



66 features to consider for the app

1.1. MYCUF DEVELOPMENT | new features | sources | mapping critical processes (3/17)

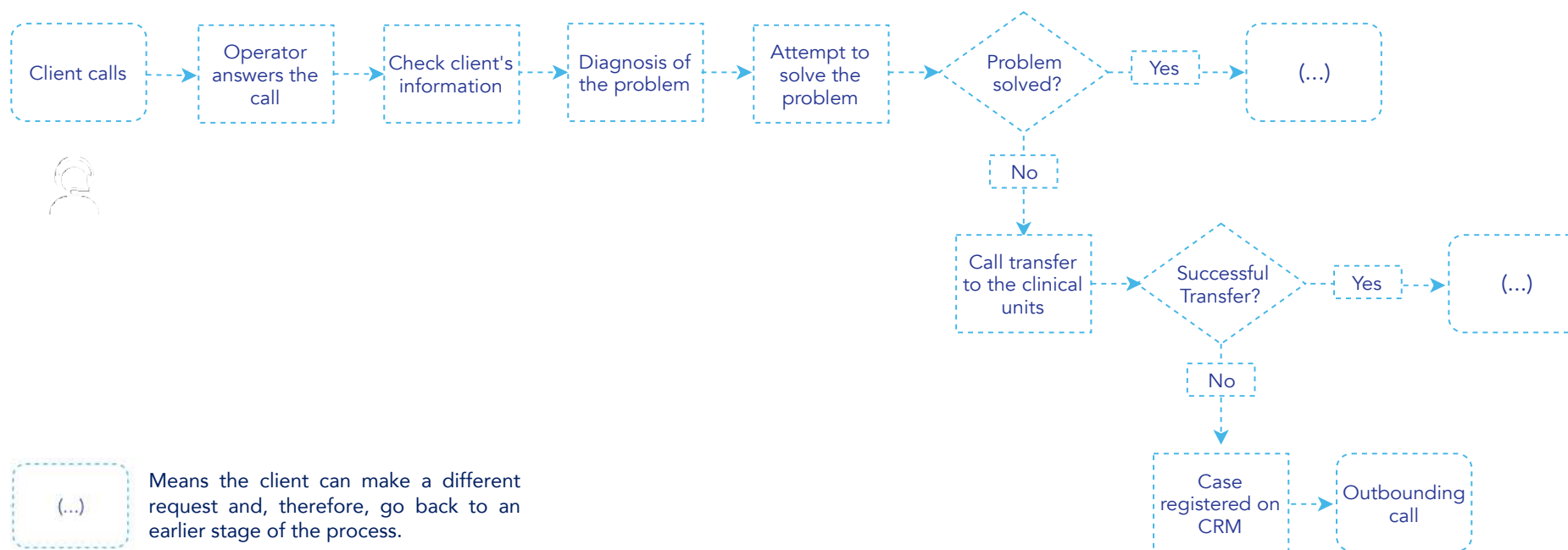
There are 2 alternative channels to MyCuf: the Contact Centre and the Front Offices of all units. Both traditional channels have well organized structures and high standards of quality.

The team tried to understand in detail how the most critical processes that involve interaction with the client actually happen. Only by doing so and by diagnosing the main issues, pains and possible areas of intervention could we proceed to making any further research, analysis and recommendations.

As the Contact Center and the Front Offices are the alternative channels to MyCuf, both processes had to be analyzed. We did it from a client's perspective to evaluate the current fit of the app in the overall process and to consider possible improvements.



THE CONTACT CENTER



(...) Means the client can make a different request and, therefore, go back to an earlier stage of the process.

Methodology

The team went to CUF's Contact Center for a whole day and had the chance to be given a brief explanation by Dr. Gonçalo Teixeira, the director of the department, and his assistant Dra. Marta Ribeiro. Also, we all had the opportunity to sit together with operators and listen to real calls.

1.1. MYCUF DEVELOPMENT | new features | sources | mapping critical processes (4/17)

There are 2 alternative channels to MyCuf: the Contact Centre and the Front Offices of all units. Both traditional channels have well organized structures and high standards of quality.

THE FRONT OFFICES

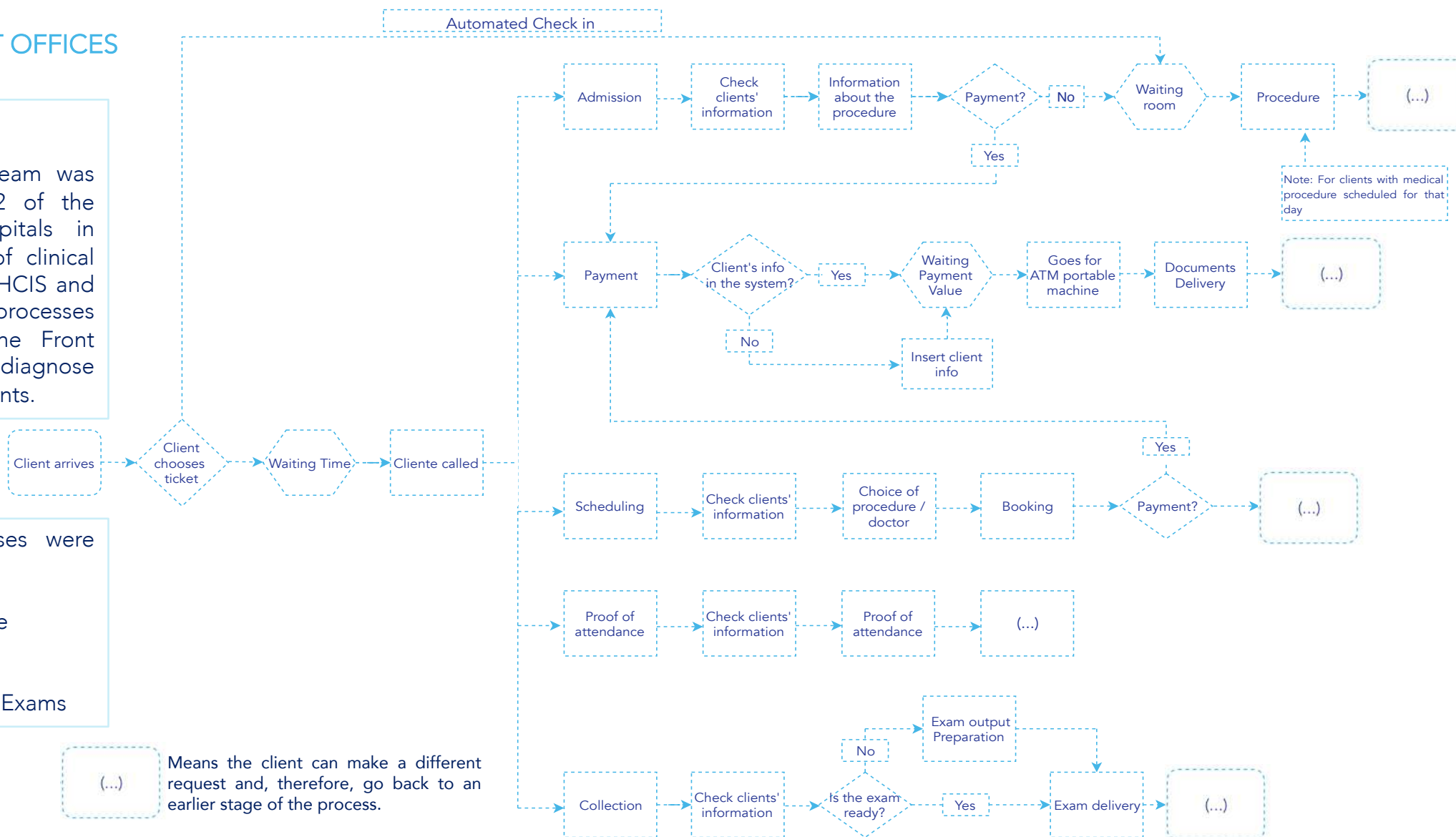
Methodology

For a week, the team was located between 2 of the biggest CUF hospitals in terms of number of clinical acts and revenues (HCIS and HCD) to study the processes taking place at the Front Offices and diagnose possible improvements.

5 different processes were analysed:

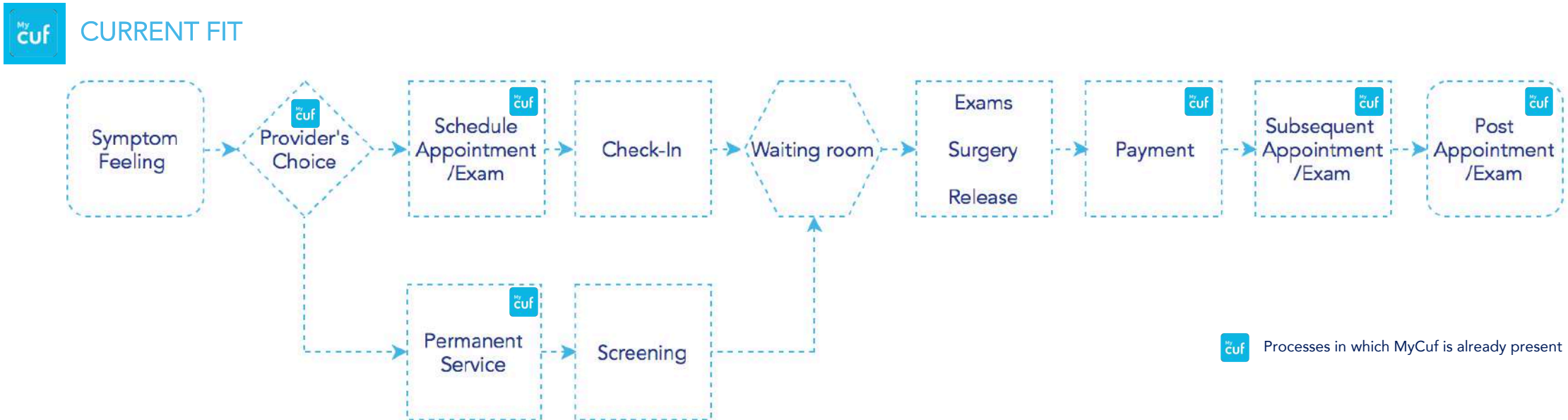
- Imaging
- Permanent Service
- Appointments
- Hospitalization
- Clinical Analysis / Exams

(...) Means the client can make a different request and, therefore, go back to an earlier stage of the process.



1.1. MYCUF DEVELOPMENT | new features | sources | mapping critical processes (5/17)

MyCuf is already being used and its features facilitate many processes that take place at the units. Still, there are even more opportunities to increase value and popularity amongst the clients.



Besides the self-explanatory association between MyCuf and features such as Scheduling Appointments, Requesting Exams, Payment and Subsequent Appointments/Exams, the app can already interact with the client in other parts of the process:

- **Choice of Provider:** MyCuf as a differentiation factor. For example, a mother can chose CUF over the other healthcare providers if she knows she can easily check the available slots for her children's appointments on MyCuf.
- **Permanent Service:** the app provides estimates of the waiting time at the units' permanent services.
- **Post Appointment/Exam:** clients can use MyCuf after the appointment or exam if they need to check their prescriptions or the exam's report.

After mapping critical processes at the CC and some FOs, we were able to realize the administrative workload behind these channels and assess MyCuf as an efficiency tool. Still, there are **some possible areas of intervention** (the ones that are not marked with MyCuf logo) where MyCuf can also serve its purpose of efficiency. A few examples involve the Check-in, Scheduling Exams (and not just requesting them), Notifications and Access to more Exams through the app.

1.1. MYCUF DEVELOPMENT | new features | sources | benchmarking (6/17)

The 44 features to consider for the app found in the benchmarking analysis were divided into 10 categories according to the processes in which they can have an impact for the client.

CLIENT PROFILE

- **Personal Data:** Access and possibility to change personal data
- **Health Record:** Access to past exams results, appointments, clinical journal notes, health summary
- **Descendants:** Access and possibility to manage the account of descendants
- **Third parties Account:** Access to the client-account of relatives, guarded, etc.

APPOINTMENT

- **Schedule Appointment:** Possibility of scheduling appointments
- **Request Appointment:** Possibility of requesting an appointment
- **Manage Appointment's Schedule:** Possibility of checking and/or canceling the scheduled appointments
- **Notes:** Possibility of accessing the notes taken by the doctor during the appointment
- **Video Consultation:** Appointment via Skype or a similar channel
- **Form:** Health form filling prior to the appointment

CHECK-IN

- **Check-in:** Possibility of having the client performing the check-in **manually** once arriving at the unit OR **automatic** detection of the client's location and arrival at the unit by the app

EXAMS

- **Schedule Exams:** Possibility of scheduling exams directly
- **Request Exams:** Possibility of requesting an exam schedule
- **Results - Image:** Access to the images of the exam results
- **Results - Report:** Access to the report of the exam results



1.1. MYCUF DEVELOPMENT | new features | sources | benchmarking (7/17)

The **44 features** to consider for the app found in the benchmarking analysis were divided into 10 categories according to the processes in which they can have an impact for the client.

PAYMENT

- **Payment:** Invoice check and possibility to pay through the app
- **Invoices:** Access to the incurred expenses' invoices
- **Copayment:** Payment of the non-deductible amount on a healthcare insurance plan with real-time invoice
- **Allowable Cost:** Proxy of the deductible expenses based on the healthcare insurance plan

INTERACTION WITH CLIENT

- **Push-up Notifications:** Message alert for appointments and for medication reminders
- **View Prescriptions:** Medical prescriptions available in the app
- **Renew Prescriptions:** Ask for the renewal of medical prescriptions through the app
- **Declaration of Presence:** Proof of client's attendance at the unit
- **Written Communication:** Possibility of communicating with the medical team through written messages
- **Communication w/ Image Upload:** Possibility of adding images to the communication with the medical team (MMS)
- **Feedback:** Feedback suggestions or complaints about the app or the medical service
- **User-friendly Login:** Easy Login through Touch ID or Facebook/Google account

INFORMATION

- **Diagnosis:** Based on the symptoms inserted in the app and the help of a search engine
- **Treatment Plan:** Access to the plan of treatment recommended by the doctor
- **Medical Info:** Information available about the medical teams and services provided
- **Hospitalization:** News and advice for inpatient clients about healthcare procedures to have before, during and after the medical intervention
- **Waiting Time:** Information about the expected waiting time
- **Share Info:** Possibility of sharing medical information with third-parties (results, appointments calendar)



1.1. MYCUF DEVELOPMENT | new features | sources | benchmarking (8/17)

The **44 features** to consider for the app found in the benchmarking analysis were divided into 10 categories according to the processes in which they can have an impact for the client.

LOCALIZATION

- **GPS:** Coordinates and directions to the different units
- **Indoor Navigation:** Virtual tour inside the hospital's facilities
- **Points of Interest:** Description of nearby points of interest (restaurants, gardens, libraries, pharmacies, etc.)

SYNCHRONIZATION

- **Fitness:** Health/Fitness section in the app
- **Vitals' Automatic Share:** Vitals info stored in HealthKit shared with medical teams
- **Synchronization:** Pairing with other apps (health, calendar, etc.)

OTHERS

- **News:** Articles with relevant information about healthcare issues
- **Partnerships:** Relevant partnerships with other companies (Ex: Uber or Taxis)
- **Invite to App:** Invite third parties to join the app through an automatic message
- **Apps' Network:** App re-directs to other more specific (niche) mobile apps
- **Health Summaries:** Explanatory videos on medical conditions, medical research evolution, etc.



1.1. MYCUF DEVELOPMENT | new features | sources | pipeline (9/17)

The 22 extra features to consider for the app brought from the existing pipeline were also allocated to the same pre-established 10 categories. They are very specific to the reality of CUF's hospitals so they had not been found in the best practices' analysis.

APPOINTMENT

- **Favorite Schedules:** Possibility of selecting the favorite schedules for appointments
- **Favorite Doctors:** Possibility of identifying the favorite doctors quickly
- **Client's Personal Notes:** Integrated notepad
- **Next Slot:** Possibility of reserving the next slot available for an appointment
- **Schedule Extra Slot:** Possibility of scheduling appointments for the doctor's extra slots
- **Health Record Validation:** Verification of the client's health record in order to schedule appointments or exams for the first time

CHECK-IN

- **Multiple Check-in:** Performing the check-in for multiple appointments and/or exams

EXAMS

- **Consent:** Possibility to consent about the medical procedures prior to their event
- **Document to Collect Exams:** Access to the document needed to collect exams at units
- **Import Results:** Possibility of having other health providers' exams and past clinical results imported into the client's health record section of the app
- **Exams Preparation:** Information about the pre-exam procedures and requisites and possibility to confirm the presence, integrating that info in the clinical file
- **Post-Discharge Reports:** Possibility of accessing the exams performed during the internment after the client leaves the hospital
- **Restricted Results:** Possibility of accessing the restricted exams performed during the internment, as long as the client already went back to the unit after that



1.1. MYCUF DEVELOPMENT | new features | sources | pipeline (10/17)

The 22 extra features to consider for the app brought from the existing pipeline were also allocated to the same pre-established 10 categories. They are very specific to the reality of CUF's hospitals so they had not been found in the best practices' analysis.

PAYMENT

- **Current Account:** Possibility to correct possible payment mistakes through this current account

INTERACTION WITH CLIENT

- **Delay Notifications:** Push-up notifications informing the client about the delay in the appointments
- **Attendance Notifications:** Push-up notifications to confirm the client's presence and automatic release of that slot in case the client does not show up
- **Prescriptions' Validity:** Inclusion of the prescriptions' expiry date in the digital document

INFORMATION

- **Activities:** Suggestion of possible activities to perform in the hospital while waiting

OTHERS

- **Agenda's Eligibility:** Possibility to access the agendas of doctors that have constraints on eligibility
- **EFR's Management:** Possibility to give the client an estimate price of his procedure and the chance to update the information about his EFR* card
- **ANF Online Shop:** Integration of the pharmacies' online shop (ANF**)
- **MAC Doctor:** Assistant Cuf Doctor (Médico Assistente Cuf) has access to the client's account as a manager

*EFR - Entidade Financeira Reguladora

** ANF – Associação Nacional de Farmácias

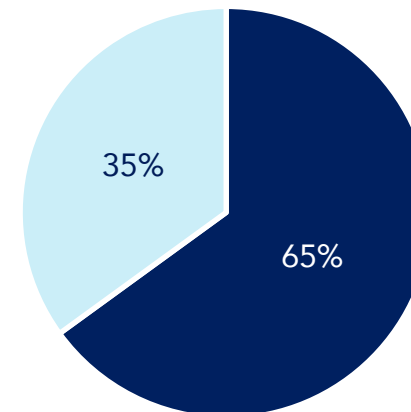


1.1. MYCUF DEVELOPMENT | new features | scorecard (11/17)

In order to make a proper judgment of all the possible features to include in the app, **2 criteria** were chosen to evaluate the features: the expected impact and the easiness of implementation.

1. The **expected impact** of the feature was taken into consideration and 2 sub-criteria were chosen: the **administrative efficiency** with a weight of **65%** and the **client's satisfaction** with the remaining weight of **35%**. All the 66 features were classified.

- **Client's satisfaction** towards the app increases when a feature allows them to perform new tasks that previously could only be performed through other channels.
- Features that have a direct effect on a big number of clients and that also have a lot of potential in terms of satisfaction towards the app were classified with a higher score.
- The possible strengthening of the brand CUF was also considered for the analysis, given that the app can help to position the brand and to differentiate it in the market.
- It is important to have in mind that a client that is more satisfied with the app will most likely use it more often in times of need, ultimately reducing a more significative workload in the front office or in the contact center.



- **Administrative efficiency** consists in the possibility of reducing the workload with administrative tasks of the front office, the contact center or directly of some medical professionals, increasing the efficiency of all the operations.
- It also conveys the chance to reduce extra costs through a better allocation of materials, like paper.

2. The **easiness of implementation** was considered to evaluate 46 out of 66 features. 20 features were excluded for the final list as they were already implemented in MyCuf or due to the difficulty in considering this criterion as some features were too complex and specific.

- Estimated technological complexity to develop a specific feature and to integrate it in the app.
- This analysis was conducted with the support of Dr. Miguel Ferreira, from the Information Systems Direction (ISD).
- It was taken into consideration that integrating content in the app that had already been developed in the CUF internal information systems was easy to implement .

1.1. MYCUF DEVELOPMENT | new features | scorecard (12/17)

MyCuf seems to be on the right track as when considering the features scored above 4 on a scale of 1 to 5 in terms of expected impact, 18.8% of them are already implemented, 37.5% are being developed and 31.2% are already in the pipeline.

From the 66 features considered for the expected impact, 21 had never been considered by the MyCuf internal team. Still, 16 of these were scored with less than 2 points (on a scale from 1 to 5), revealing not to be so important. However, 5 out of these 21 seem to have a significant potential impact. They are either related to the direct communication with a medical team or to the possibility of associating the insurance information to the process of real time payment.

Feature	A.Efficiency		C.Satisfaction		Expected Impact	Easiness Implem.	MyCuf
	65%	35%	100%	100%			
Schedule Appointment	5	5	5,0	N.A	✓		
Schedule Exams	5	5	5,0	2,0	D		
Results - Report	5	5	5,0	N.A	✓		
Payment	5	5	5,0	N.A	✓		
Post Discharged Reports	5	5	5,0	4,0	P		
Restricted Results	5	5	5,0	5,0	P		
Agenda's Eligibility	5	5	5,0	5,0	D		
Third parties Account	5	4	4,7	3,0	D		
Check-in	5	4	4,7	2,0	D		
Multiple Check-in	5	4	4,7	2,0	D		
Push-up Notifications	4	5	4,4	4,0	D		
Written Communication	4	5	4,4	3,0	✗		
Schedule Extra Slot	4	5	4,4	2,0	P		
Doc. to Collect Exams	5	3	4,3	3,0	P		
Attendance Notifications	5	3	4,3	3,0	P		
Results - Image	4	4	4,0	2,0	✗		
Manage Appointments	3	5	3,7	N.A	✓		
Next Slot	3	5	3,7	2,0	P		
Personal Data	3	4	3,4	N.A	✓		
Request Appointment	3	4	3,4	N.A	✓		
Request Exams	3	4	3,4	N.A	✓		
View Prescriptions	3	4	3,4	N.A	✓		
Communication Image	3	4	3,4	3,0	✗		
User-friendly Login	3	4	3,4	N.A	✓		
Favorite Schedules	3	4	3,4	4,0	P		
Copayment	2	5	3,1	3,0	✗		
Allowable Cost	2	5	3,1	3,0	✗		
MAC Doctor	2	5	3,1	3,0	P		
Renew Prescriptions	3	3	3,0	5,0	P		
Medical Info	3	3	3,0	N.A	✓		
Consent	3	3	3,0	3,0	D		
Exams Preparation	3	3	3,0	4,0	D		
Current Account	3	3	3,0	1,0	P		

Out of the most important features in terms of expected impact, it is possible to conclude that MyCuf already incorporates some essential features (such as the possibility to schedule appointments or to pay through the app) and it is already developing and testing many others (such as the check-in or the push-up notifications)

- ✓ already in MyCuf
- ✗ neither in MyCuf nor in the pipeline
- P exclusively found in the pipeline, not on MyCuf yet
- D currently being developed
- N.A one of the 20 excluded features

Feature	A.Efficiency		C.Satisfaction		Expected Impact	Easiness Implem.	MyCuf
	65%	35%	100%	100%			
EFR's Management	3	3	3,0	4,0	P		
Health Record	2	4	2,7	N.A	✓		
Descendants	2	4	2,7	N.A	✓		
Declaration of Presence	2	4	2,7	5,0	D		
Favorite Doctors	2	4	2,7	N.A	✓		
Delay Notifications	2	4	2,7	2,0	P		
Prescriptions' Validity	2	4	2,7	5,0	P		
Import Results	1	5	2,4	5,0	D		
Invoices	2	3	2,4	N.A	✓		
Treatment Plan	2	3	2,4	4,0	D		
Waiting Time	2	3	2,4	N.A	✓		
GPS	2	3	2,4	5,0	P		
Client's Personal Notes	2	3	2,4	5,0	P		
Health Record Validation	2	3	2,4	3,0	P		
Notes	1	3	1,7	4,0	✗		
Video Consultation	1	3	1,7	3,0	✗		
Form	1	3	1,7	2,0	✗		
Diagnosis	1	3	1,7	1,0	✗		
Hospitalization	1	3	1,7	4,0	✗		
Indoor Navigation	1	3	1,7	2,0	P		
Synchronization	1	3	1,7	N.A	✗		
Health Summaries	1	3	1,7	5,0	✗		
Feedback	1	2	1,4	4,0	✗		
Points of Interest	1	2	1,4	4,0	✗		
Fitness	1	2	1,4	2,0	✗		
News	1	2	1,4	5,0	✗		
Partnerships	1	2	1,4	N.A	✗		
Invite to App	1	2	1,4	4,0	✗		
Apps' Network	1	2	1,4	N.A	✗		
Share Info	1	1	1,0	N.A	✗		
Vitals' Automatic Share	1	1	1,0	2,0	✗		
Activities	1	1	1,0	5,0	P		
ANF Online Shop	1	1	1,0	N.A	P		



1.1. MYCUF DEVELOPMENT | new features | scorecard (13/17)

20 features were excluded when considering the easiness of implementation: these features were either already present in the app (and it would not make any sense to score them in terms of easiness of implementation) or, as the Information Systems Direction mentioned during the analysis, extra information in terms of complexity would be required to be possible to evaluate these very specific features.

Reason of exclusion	Feature				
EXTRA INFO REQUIRED	PARTNERSHIPS	SHARE INFO	ANF ONLINE SHOP	SYNCHRONIZATION	APPS' NETWORK
ALREADY IMPLEMENTED	SCHEDULE APPOINTMENT	RESULTS REPORT	PAYMENT	FAVORITE DOCTORS	PERSONAL DATA
	REQUEST EXAMS	VIEW PRESCRIPTIONS	USER FRIENDLY LOGIN	HEALTH RECORD	DESCENDANTS
	MANAGE APPOINTMENT'S SCHEDULE	REQUEST APPOINTMENT	INVOICES	WAITING TIME	MEDICAL INFO



20 features excluded

Only **46** features to be considered and evaluated

1.1. MYCUF DEVELOPMENT | new features | clusters (14/17)

After evaluating each of the 46 features individually according to the expected impact and the easiness of implementation respectively, 4 levels of priority – clusters – were defined so as to compare the scores of each criterion and make a decision on what features to implement in the short term.



Defining 4 clusters for both criteria

The cluster method consisted in creating 4 groups of observations using a statistical approach that tried to minimize the sum of the distances of the observations in each level in relation to that cluster average.

Firstly, the features were ranked (from the highest to the lowest score) and, keeping that order, “randomly” divided into 4 groups.

Secondly, the average of each group was calculated. Then, the square of the difference of each observation in the group to the average of that group was obtained. Finally, all the squared differences were summed.

As the goal was to minimize this sum, this cluster method involved some trial and error in order to reach the best results.

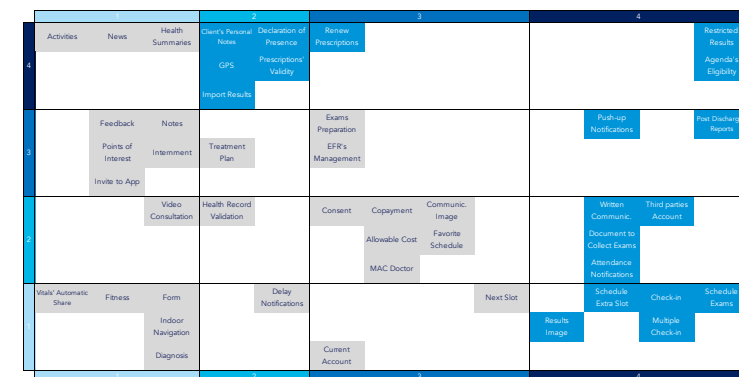
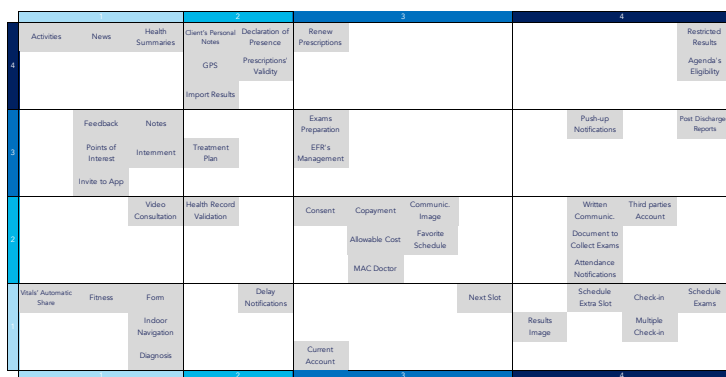
The creation of clusters for each criterion was conducted separately.

Cluster	Feature	Expected Impact
4	Schedule Exams	5,0
	Post Discharged Reports	5,0
	Restricted Results	5,0
	Agenda's Eligibility	5,0
	Check-in	4,7
	Multiple Check-in	4,7
	Third parties Account	4,7
	Push-up Notifications	4,4
	Written Communication	4,4
	Schedule Extra Slot	4,4
	Doc. to Collect Exams	4,3
	Attendance Notifications	4,3
	Results - Image	4,0
	Next Slot	3,7
3	Communication Image	3,4
	Favorite Schedules	3,4
	Copayment	3,1
	Allowable Cost	3,1
	MAC Doctor	3,1
	Consent	3,0
	Exams Preparation	3,0
	Current Account	3,0
	EFR's Management	3,0
	Renew Prescriptions	3,0
2	Declaration of Presence	2,7
	Prescriptions' Validity	2,7
	Delay Notifications	2,7
	Import Results	2,4
	Treatment Plan	2,4
	Client's Personal Notes	2,4
	Health Record Validation	2,4
	GPS	2,4
	Notes	1,7
	Video Consultation	1,7
1	Form	1,7
	Diagnosis	1,7
	Hospitalization	1,7
	Indoor Navigation	1,7
	Health Summaries	1,7
	Feedback	1,4
	Points of Interest	1,4
	Fitness	1,4
	News	1,4
	Invite to App	1,4
	Vitals' Automatic Share	1,0
	Activities	1,0

Cluster	Feature	Easiness of Implementation	
4	Restricted Results	5,0	
	Agenda's Eligibility	5,0	
	Renew Prescriptions	5,0	
	Declaration of Presence	5,0	
	Prescriptions' Validity	5,0	
	Client's Personal Notes	5,0	
	GPS	5,0	
	Health Summaries	5,0	
	News	5,0	
	Activities	5,0	
	Import Results	5,0	
	3	Post Discharged Reports	4,0
		Push-up Notifications	4,0
		Favorite Schedules	4,0
Exams Preparation		4,0	
EFR's Management		4,0	
Treatment Plan		4,0	
Notes		4,0	
Hospitalization		4,0	
Feedback		4,0	
Points of Interest		4,0	
Invite to App	4,0		
2	Written Communication	3,0	
	Doc. to Collect Exams	3,0	
	Attendance Notifications	3,0	
	Communication Image	3,0	
	Copayment	3,0	
	Allowable Cost	3,0	
	MAC Doctor	3,0	
	Consent	3,0	
	Third parties Account	3,0	
	Health Record Validation	3,0	
1	Video Consultation	3,0	
	Schedule Exams	2,0	
	Schedule Extra Slot	2,0	
	Check-in	2,0	
	Results - Image	2,0	
	Multiple Check-in	2,0	
	Next Slot	2,0	
	Delay Notifications	2,0	
	Form	2,0	
	Indoor Navigation	2,0	
	Fitness	2,0	
	Vitals' Automatic Share	2,0	
Current Account	1,0		
Diagnosis	1,0		

1.1. MYCUF DEVELOPMENT | new features | the matrix (15/17)

The matrix created included 46 features from the initial list of 66. 4 categories were defined and only then the features were allocated to their place, according to the scores previously obtained. 19 features were selected to implement in the app: 4 belonging to the Priority area, 9 to the Structural and 6 to the Easy Kills.



4 big categories were created based on what was considered fair for the analysis.

PRIORITY – features with large expected impact that are relatively easy to implement.

STRUCTURAL – although these features are not easy to implement, it is expected they will bring lots of impact to the core of the app.

EASY KILLS – features that are not so impactful but that are very easy to implement.

LESS RELEVANT – features that are not very easy to implement and its expected impact is low.

Considering the scores obtained for each criterion and the levels of priority established with the clusters' analysis, the matrix was built by crossing the 4 clusters of each criterion for all the 46 features.

Horizontally, the features are displayed considering its expected impact, whereas vertically they are evaluated according to its easiness of implementation.

The combination of expected impact and easiness of implementation defines each feature's position in the matrix.

Only those features located in the 3 selected areas (Priority, Structural or Easy Kills) were chosen to implement, as they met the defined requirements.

19 features were the result of the analysis.



1.1. MYCUF DEVELOPMENT | new features | the matrix (16/17)

The matrix created included 46 features from the initial list of 66. 4 categories were defined and only then the features were allocated to their place, according to the scores previously obtained. 19 features were selected to implement in the app: 4 belonging to the Priority area, 9 to the Structural and 6 to the Easy Kills.

		1			2		3			4						
Easiness of Implementation	4	Activities	News	Health Summaries	Client's Personal Notes	Declaration of Presence	Renew Prescriptions						Restricted Results	4	Levels of priority: 4 – Maximum 3 – High 2 – Medium; 1 – Low	
					GPS	Prescriptions' Validity							Agenda's Eligibility			
					Import Results											
	3		Feedback	Notes			Exams Preparation					Push-up Notifications	Post Discharged Reports	3	Suggested features	
		Points of Interest	Interment	Treatment Plan	EFR's Management											
	2			Video Consultation	Health Record Validation		Consent	Copayment	Communic. Image			Written Communic.	Third parties Account	2		
								Allowable Cost	Favorite Schedule			Document to Collect Exams				
								MAC Doctor				Attendance Notifications				
	1	Vitals' Automatic Share	Fitness	Form		Delay Notifications				Next Slot		Schedule Extra Slot	Check-in	Schedule Exams	1	
					Indoor Navigation							Results Image	Multiple Check-in			
				Diagnosis			Current Account									
		1			2		3			4						

1.1. MYCUF DEVELOPMENT | new features | the matrix (17/17)

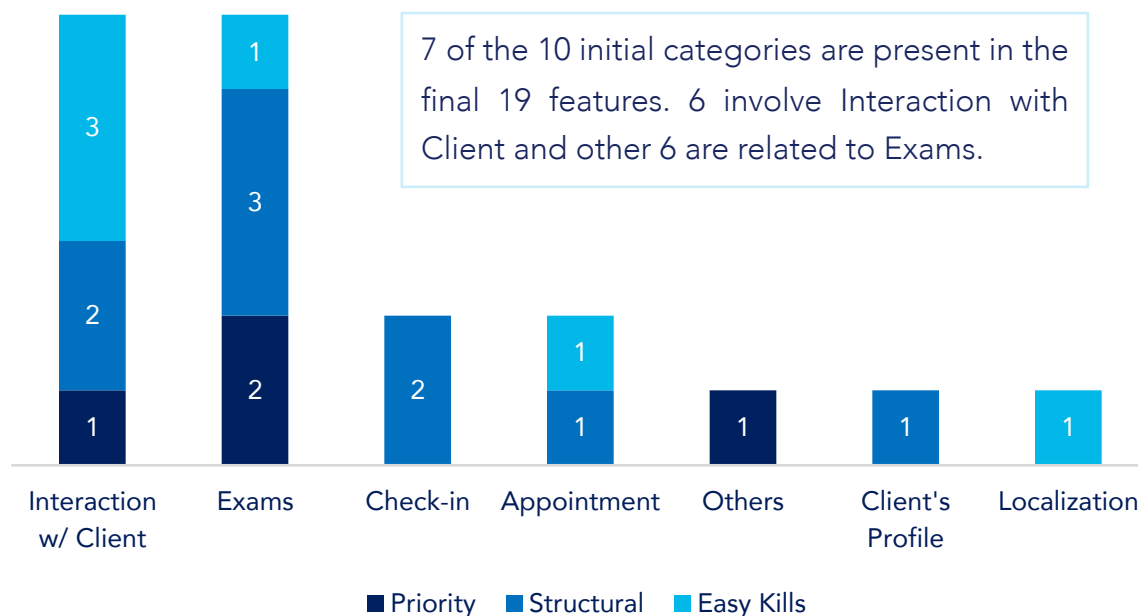
The 19 final features can be analyzed according to 3 lenses: its source, category and state of development. 12 are either related to Exams or the Interaction with Client. 4 are exclusive to the benchmarking analysis conducted. 11 are not being tested and must be implemented.

Not all 19 features were found through the same source. A few were exclusive from the benchmarking analysis, others were only present in the existing pipeline and some were common to both sources:

- 4 benchmarking
- 10 pipeline
- 5 benchmarking + pipeline

Out of the 19 features recommended for implementation, there are 8 that the internal MyCuf team is already developing or its implementation is being tested. Thus, the 11 features that must go into the final pipeline are:

- Post-discharged Reports
- Restricted Results
- Written communication
- Results - Image
- Attendance Notifications
- Schedule Extra Slot
- Document to Collect Exams
- GPS
- Renew Prescriptions
- Client's personal Notes
- Prescriptions' Validity



A G E N D A



JOSÉ DE MELLO SAÚDE

DIAGNOSIS

1. THE HEALTHCARE INDUSTRY
2. THE PORTUGUESE HEALTHCARE SECTOR

ANALYSIS

1. JOSÉ DE MELLO SAÚDE
2. MYCUF
3. MYCUF PRO

RECOMMENDATIONS

1. HOW CAN MYCUF INCREASE JMS' EFFICIENCY?
 - 1.1. MyCuf Client Development
 - 1.2. Adoption & Usage Plan
 - 1.3. MyCuf PRO

FURTHER ANALYSIS

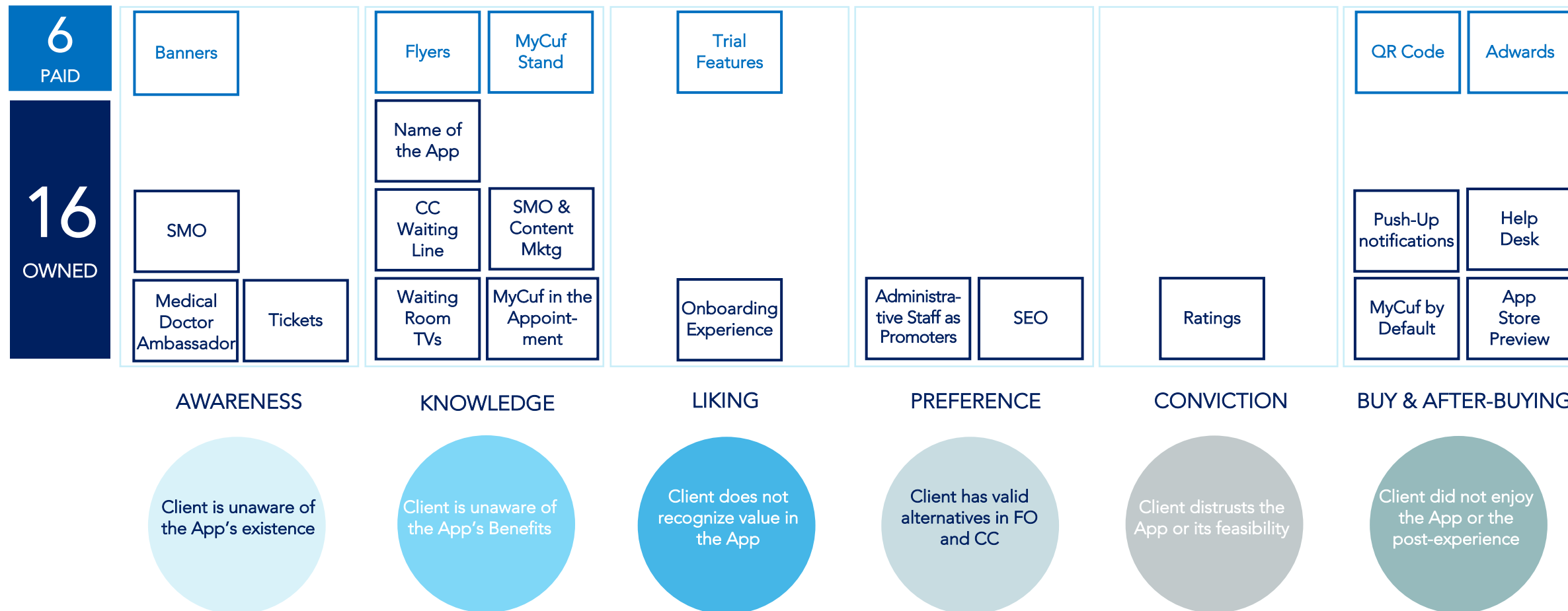
1. MEASURING IMPACT
2. CHALLENGES
3. IMPLEMENTATION PLAN

A dimly lit hospital hallway with a nurse in the foreground and other people in the distance. The hallway is long and narrow, with white walls and a polished floor. On the left, there are several doors and a hand sanitizer dispenser. On the right, there are more doors and a piece of medical equipment with two monitors. In the center, a nurse in white scrubs and blue shoes is walking towards the camera. In the background, two other people are walking away from the camera. The overall atmosphere is clean and professional.

1.2. ADOPTION & UTILIZATION

1.2. ADOPTION & UTILIZATION PLAN | main solutions (1/29)

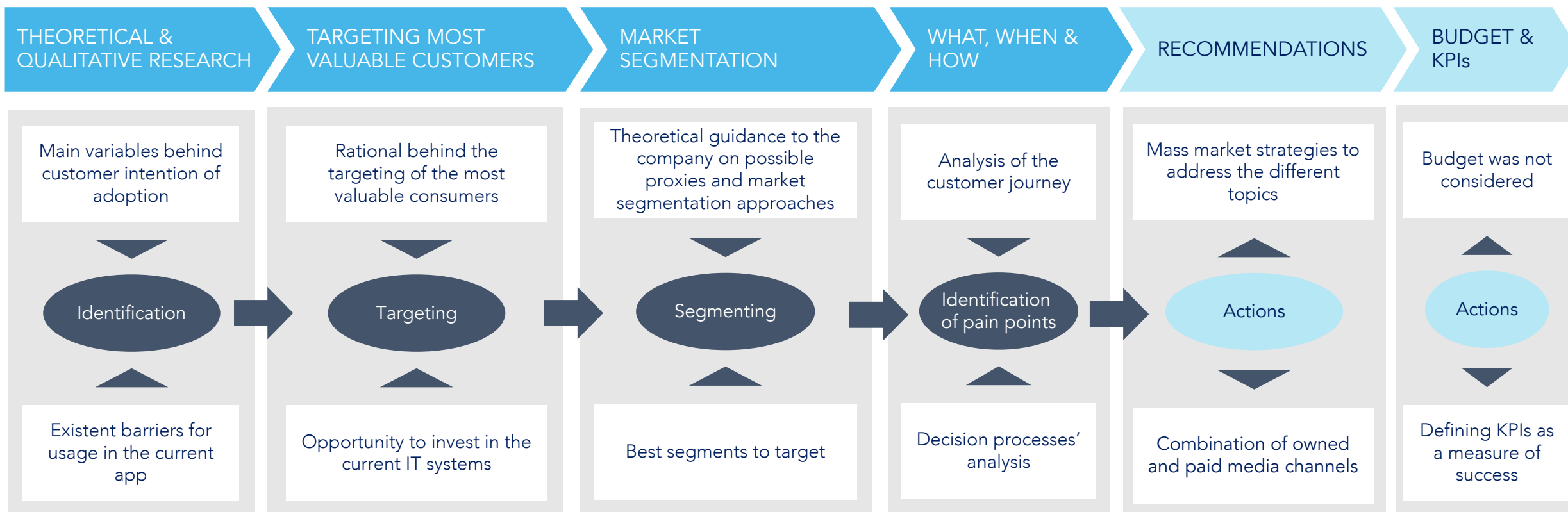
With the goal of increasing the current number of active accounts from 310K to 500K in 2018, the communication will follow a strategic combination of paid and owned channel media that will try to mitigate the six main barriers diagnosed during the qualitative analysis through the customer's readiness-to-buy process¹: Awareness, Knowledge, Liking, Preference, Conviction, and Buy & After-Buying.



Disclaimer: Despite the above distribution, it is important to mention that, as we will see, healthcare service is a dynamic process. Considering that, the proposed solutions can be used to mitigate more than one barrier at the same time.

1.2. ADOPTION & UTILIZATION PLAN | methodology (2/29)

The strategy will be achieved by generating and increasing awareness, as well as by communicating the value and main benefits of the app to the final consumer. 4 steps led to the final recommendations and the definition of KPIs.



ADOPTION & UTILIZATION PLAN

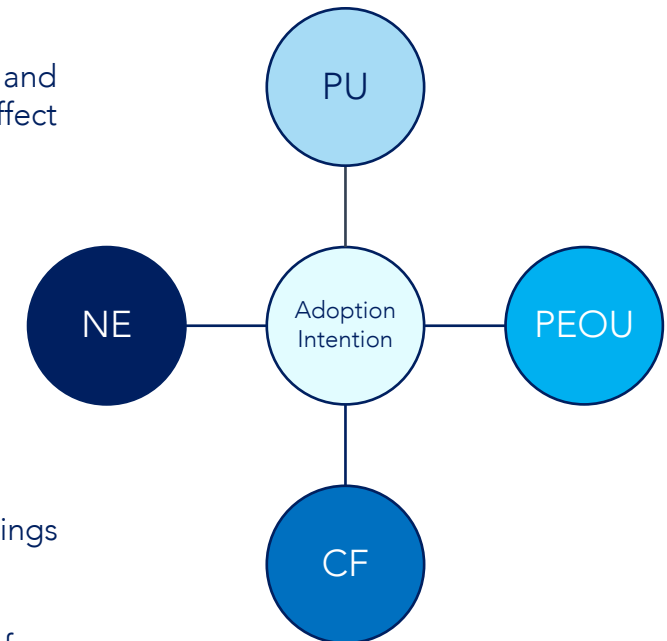
1.2. ADOPTION & UTILIZATION PLAN | drivers of adoption intention (3/29)

A study by a group of scientists from the University of Shanghai Jiao Tong states that user's adoption intention of m-health apps is essentially influenced by 4 main drivers: Perceived Usefulness, Perceived Ease of Use, Cost Factor and Network Effects of the devices.

The academic research in question performed a **comprehensive data analysis methodology** in mhealth and had the clear purpose of "*studying the factors that influence patients' adoption intention of mhealth*".

Despite focusing on a narrow target (chronically-ill patients), we believe this study can represent a good example and a starting point to understanding the major drivers of adoption behaviors concerning m-health apps that affect healthcare patients in general.

"mhealth developers need to focus on the key factors that influence users' adoption intention (...) The results show that perceived usefulness and perceived ease of use have the strongest positive effect on patients' adoption intention. Meanwhile, subjective norm, existing degree of satisfaction, network effect, and cost factor also influence adoption intention."



The 4 main drivers that will be considered for the analysis are:

PERCEIVED USEFULNESS PU	Degree to which a person believes that using a particular system brings associated value.
PERCEIVED EASE OF USE PEOU	Degree to which a person believes that using a particular system would be free of effort.
COST FACTOR CF	Cost that patients are faced with, which not only are monetary, but also non-monetary, as time and effort spent on transportation, waiting time at the unit line, etc.
NETWORK EFFECTS NE	"Refers to the phenomenon that the larger a user network is, the more likely technology acceptance happens".

1.2. ADOPTION & UTILIZATION PLAN | qualitative research (4/29)

10 in-depth interviews were conducted and 2 brainstorming sessions with a total of 35 participants were organized. With this qualitative analysis, it was possible to derive the customer readiness-to-buy process, the main drivers of healthcare app adoption intention, and the barriers and possible solutions to adoption and usage of the app among CUF clients.



MAIN FINDINGS

1. Customer Readiness to Buy Process
2. Main drivers of Healthcare App adoption intention
3. Barriers and Solutions to Adoption and Usage

Qualitative Research Structure | RESEARCH & METHODOLOGY

11 In-depth Interviews

1. Target Selection
2. Direct Method – individual interview to differentiate relevant sample

Sample details

GENDER

Female: 55%
Male: 45%

AGE

Silent Generation: 2
Baby Boomers: 4
Generation X: 3
Generation Y: 2

HEALTHCARE PROVIDER

CUF: 45%
Not CUF: 55%

APP USAGE

Use: 3
Do not use: 8

2 Brainstorming Sessions

1. Background & Group selection
2. Procedure: One Post-It, One Barrier
3. Barriers categorization
4. Find & Discuss Solutions

Sample details

GENDER

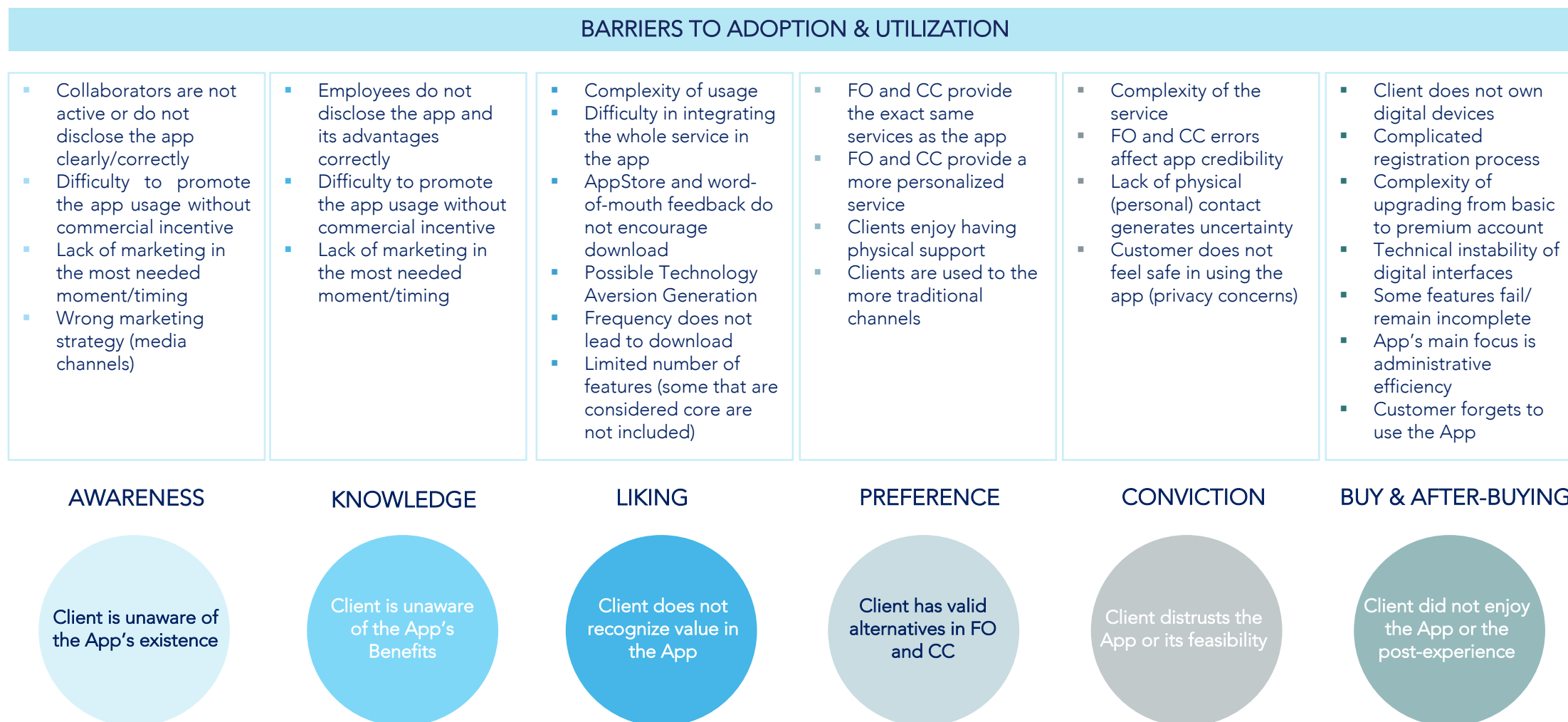
Female: 50%
Male: 50%

BACKGROUND

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Internal expert session <ul style="list-style-type: none"> ▪ IT ▪ Marketing ▪ Project ▪ Service Lines ▪ Production Division | <ol style="list-style-type: none"> 2. External session <ul style="list-style-type: none"> ▪ Medicine students ▪ Management Students ▪ Teachers |
|--|---|

1.2. ADOPTION & UTILIZATION PLAN | qualitative research (5/29)

The insights extracted were diagnosed in a sequential process and grouped as awareness, knowledge, liking, knowledge, preference, conviction and buy & after-buying barriers, as mentioned in the customer readiness-to-buy process, firstly developed by Philip Kotler¹. These barriers will be tackled by our recommendations.



¹Philip Kotler, 1997, *Integrated Marketing Communication Strategy: Developing the Marketing Mix*

1.2. ADOPTION & UTILIZATION PLAN | expected savings | the rational (6/29)

The concept “alternative of administrative efficiency” introduced by MyCuf app implies that the company should be able to save time (minutes) per client in the existing alternative channels. In order to achieve the highest level of savings, JMS should target the most time consuming customers, never forgetting the client’s intention to use the app. For that, the company would need a complex dataset and additional extensive market research.

Service time corresponds to the total amount of time spent by one employee when providing a service to a given client. Let us assume:

TOTAL ADMINISTRATIVE COST PER CLIENT = TOTAL ADMINISTRATIVE MINUTES CONSUMED PER CLIENT X ADMINISTRATIVE MINUTE COST PER EMPLOYEE¹

$$TAC_{x,y} = TAM_{x,y} \times AMC_{z,y}$$

At the limit the company can only save as much money per client as the amount of administrative cost per client, such that:

$$TAC_{x,y} = TAM_{x,y} \times AMC_{z,y} = [Number\ of\ visits/calls\ to\ services\ lines_{x,y} \times Average\ time\ spent\ per\ service\ line_{x,y}] \times AMC_{z,y} = Savings\ Opportunity$$

In the context of the project, JMS would only be able to save money with a determined customer if he/she indeed uses the app in alternative to the remaining service lines.

As seen before, customer intention adoption should be influenced by the app’s PU - Perceived Usefulness, PEOU - Perceived Ease of Use, CF - Cost Factor, and NE - Network effect. Let us then assume that Customer’s Adoption Intention Probability per client² ($CAIP_x$) as the weighted average of PU, PEOU, CF, and NE, such that:

$$CAIP_x = F(PU, PEOU, CF, NE) = PU_x \times \alpha + PEOU_x \times \beta + CF_x \times \delta + NE_x \times \gamma, \quad \text{with} \quad 0 < CAIP_x, PU_x, PEOU_x, CF_x, NE_x < 100 \wedge sum(\alpha, \beta, \delta, \gamma) = 100$$

The Expected Savings value per client, $E(S)_{x,y}$, our ultimate indicator to assess which customers to target at first, will therefore be given by:

$$E(S)_{x,y} = TAC_{x,y} \times CAIP_x = savings\ opportunity \times probability\ of\ adopting\ the\ app$$

Considering all this, the ideal scenario would be one such that, for every client, the company would know all the described variables³. This way the company would be able to assess the most valuable consumers⁴.

Client (X)	Total Administrative Cost				Customer's Adoption Intention Probability				
	Number of Calls 2017	Avg call time 2017 (s)	Number of Visits 2017	Avg time spent on FO 2017	PU (1-100)	PEOU (1-100)	CF (1-100)	NE (1-100)	Probability
1	20	260	1	230	10	10	10	10	0
2	25	300	3	250	80	80	80	80	0,8

However, obtaining all this information would be a complex and extremely costly process, specially due to the need of performing extensive and, possibly, intrusive consumer market research, which could raise questions regarding privacy and data protection. The group will then explain how the company can overcome this issue, at least in what concerns customer’s adoption intention market research.

¹For sake of simplicity, FO and CC cost per minute were considered the same; ²Assuming customer adaption intention probability as constant over time, $CAIP_{x,y1} = CAIP_{x,y2}$; ³Fictitious values; ⁴The group acknowledges market segmentation and targeting as different from assessing willingness to adopt a product or service of a certain client. As will be seen in the next slides, clients should be grouped into segments based on similar characteristics (behavior, needs, demographics etc.) in order to be targeted more efficiently. This exercise was computed for the rational only, and assuming the *ceteris paribus* condition, with the purpose of being used in the future market segmentation analysis;

1.2. ADOPTION & UTILIZATION PLAN | expected savings | proxies (7/29)

The complexity of collecting data leads companies to use proxies to estimate the values of the desired variables. Automatic Check-In usage rates could be a fair estimation for the clients' app adoption intention. This brings an opportunity to invest in the development of the current IT systems. The investment should proceed only if customer unitary expected savings would compensate for customer unitary investment costs.

Proxy to measure app adoption intention: when information and data are so delicate and hard to obtain, it is a common practice to use proxy values for the variables. In the situation described in the previous slide, the company may assume:

- Cost Factor could be approximated to the average waiting time per client.
- Perceived Usefulness and Perceived Ease of Use could be explained by customers' technology propensity, for which the percentage of times the customer has performed the Check-in with the help of the automatic kiosk machine could be a proper estimation.

An opportunity to invest in the IT systems: Hence, the initial costly and complex dataset issue could be overcome with a reasonable investment in the development of the company's existent Information Technology Systems, allowing the company to keep track of the defined proxy variables¹.

Client (X)	Total Administrative Cost				PU & PEOU	Cost Factor	CAI Probability
	Number of Calls 2017	Avg call time 2017 (s)	Number of Visits 2017	Avg time spent on FO 2017 (s)	Kiosk Machine Usage (%)	Avg Waiting Time (s)	Proxy CAIP
1	20	260	1	230	0,1	300	0,05
2	25	300	3	250	0,8	500	0,5

It is important to bear in mind that these types of investments, contrary to market researches, will prevail longer over time. The final decision, however, should take into consideration the Expected Savings Value per client - $E(S)_{x,y}$ - and compare it against the Investment Cost per client - $IC_{x,y}$ ¹, such that:

$$IC_{x,y} = \frac{\text{Total IT development cost (investment)}_y}{\text{Total number of clients}}$$

For the investment to compensate, it should only proceed if the Investment Cost per client would be at least equal to the Expected savings per client:

$$\text{Net Present Value of the Investment}^3 = E(S)_{x,y} - IC_{x,y} \Rightarrow NPV \geq 0, \text{ when } E(S)_{x,y} \geq IC_{x,y}$$

This approach will be particularly important in the groups' market segmentation. In the absence of datasets similar to the ones we have seen so far, the team used some of the proxy values discussed until now.

¹ This cost will depend solely on the total number of clients (as clear by the formula), and will be the same for every client. Being so, we can treat variable "Customer - x - " as a simple constant; ² Fictitious values; ³ Time value of money excluded for sake of simplicity



1.2. ADOPTION & UTILIZATION PLAN | market segmentation | generations (8/29)

The database provided by the client constrained the market segmentation of CUF customers into the creation of 4 segments, Silent Generation, Baby Boomers, Generation X, and Millennials.

Given the impossibility of singly targeting each one of the most valuable customers, mostly due to the tremendous cost of such measure, the group recognizes that the best approach to a more reachable, affordable, and effective marketing campaign, would be by grouping our market (CUF clients) into **segments with similar characteristics** following the STP (segmentation targeting and position) method approach.

The group asked the company to provide data for that same purpose. However, our client's marketing department was only able to provide us data for the variable "yearly number of visits", individually split (non-aggregated) per gender, age, healthcare location and specialization (see Appendix 1). Only the data concerning the age was used.

Given this constraint and the impossibility of questioning the CUF's clients, the group's research on the industry and type of product concluded that the **best approach to segment the market would be by age segment, and more specifically by generation**. The group decided to only consider the 4 generations of people with more than 16 years old*.

Let us then consider the following market segments:



SILENT GENERATION (1900-1945) | (+79)
Values: Discipline, Patriotism, Patience, Responsibility
What they value: Family / Community
Technology: Adapted
Communications Media: Rotary Phones, Write a memo
Personality: Judi Dench

GENERATION BABY BOOMERS (1946-1964) | (54-78)
Values: Equal rights, Loyalty, Work,
What they value: Success
Technology: Acquired
Communications Media: Touch-tone phones
Personality: Barack Obama



GENERATION X (1965-1980) | (38-53)
Values: Balance, Diversity, Entrepreneurial, Fun
What they value: Time
Technology: Assimilated
Communications Media: Cell phones
Personality: Jennifer Lopez

GENERATION Y – MILLENNIALS (1981-1997) | (20-37)
Values: Achievement, Confidence, Avid Consumers, Sociability, Optimism,
What they value: Individuality
Technology: Integral
Communications Media: Internet
Personality: Mark Zuckerberg



*Children, by product (MyCuf) definitions, will be under the purview of their parents/legal guardians until the moment they reach 16 years old. Generation "Z" was therefore excluded from the possible market.

1.2. ADOPTION & UTILIZATION PLAN | market segmentation | quantitative analysis (9/29)

The group's qualitative research clearly confirmed Perceived Usefulness and Perceived Ease of Use as main drivers of app adoption intention. In addition, the interviewed people pointed yearly number of visits and average waiting time as other main drivers, which were considered as integrated part of Cost Factor. Given the imposed limitations, a quantitative questionnaire was used to measure the average values of the explanatory variables per generation.

In order to assess the most valuable market segments, the group should be able to measure the value of the established explanatory factors for the adoption intention of each of the segments. Then, it would be possible to **estimate the average expected savings value per generation**.

To solve that problem, the group recognized that the best approach would be conducting of a market research survey on the company's clients, built with the insights of qualitative analysis. However, there were **constraints regarding the possibility of addressing the clients in specific (GDPR)¹** and the questionnaire could not be sent.

Nevertheless, for the sake of the exercise, and only to provide theoretical guidance to the company, the client agreed that the best alternative approach would be to send a **sample survey** (see Appendix 2) to a small number of people **without referring the CUF brand**. Still, the group prepared a more extensive and complete questionnaire (see Appendix 3) to be used by the company for the same purpose, to be sent when the timing to address customers is appropriate. In what concerns the final recommendations, as required by the client, the group followed a general and mass market approach.

PERCEIVED USEFULNESS

- Rating (1-4) of the perceived usefulness of an hypothetical healthcare mobile application (a basic and general description of possible main functions was given).

PERCEIVED EASE OF USE

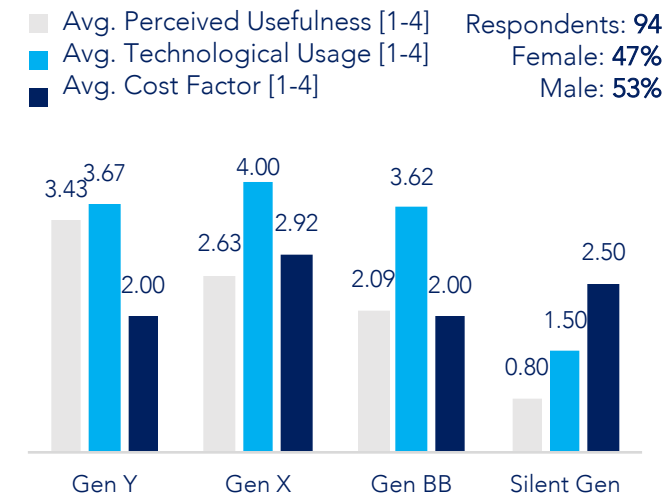
- Due to the impossibility of showing the actual app, Technology Usage was used as a proxy, which will be measured by the total Number of technological activities performed from a set of 4 given alternatives (1- Calling a transportation through a mobile app, 2- Usage of mobile phone navigation system, 3-Checking bank balance online, 4- Performing an online purchase).

COST FACTOR

- Computed as the average waiting time (FO and CC) weighted on the number of estimated visits/calls. The variable was converted into a 1-to-4 scale. (See Appendix 4)

NETWORK EFFECT FACTOR

- Rolled out due to little evidence as a main driver in the qualitative interviews.



¹ GDPR (General Data Protection Regulation) - Enforceable on 25th of May 2018, will replace "1995 Data Protection Directive". The company was cautious regarding the implications and possible impact of the new regulator, and therefore vetoed any contact with the clients for the time being.

1.2. ADOPTION & UTILIZATION PLAN | market segmentation (10/29)

Proxy variables were used to compute the estimated generational Customer's Adoption Intention Probabilities. These probabilities will be used to weight the generational savings opportunity (market sizes) and, ultimately, to assess the expected savings value for each market segment. The most valuable segments (with the highest expected savings) proved to be generations X and Y, with values of 510 903€ and 254 218€, respectively.

ADDRESSING GENERATION VALUE

MARKET SIZING

- The size of the market, as previously seen, will be measured in savings opportunity, which will be equivalent to time consumed in the administrative service lines. The groups reinforces the theoretical nature of this approach to targeting its existent market.

	Estimated # Clients	Estimated Avg # Calls	Avg Call time (m)	Avg # Visits	Avg FO time (m)	Employee Cost (€/m)	Savings Opportunity
Gen Y	174 485	4,9	2,42	1,0	4,67	0,1223	€ 349 363
Gen X	202 440	4,9	4,21	1,1	5,64	0,1223	€ 660 051
Gen BB	169 636	4,9	2,65	1,1	4,27	0,1223	€ 365 592
Silent Gen	65 485	4,9	3,50	1,1	5,00	0,1223	€ 180 907

Notes:

- Time consumption numbers (average time per call and visit) were extracted from the conducted surveys.
- The estimated number of clients per age, number of calls and number of healthcare visits was estimated based on the company provided database. (See Appendix 5)

GENERATIONAL VALUE ASSESMENT

- Customer's Adoption Intention Probabilities will be calculated based on a ratio computed with an equally weighted average of the 3 found explanatory variables. The final value (Expected Savings) will have in consideration each market segment's savings opportunity and its adoption probability.

	Savings Opportunity	TU	PU	CF	Ratio	Probability of Adoption	Expected Savings
Gen Y	€ 349 363	3,43	3,67	1,72	2,91	73%	€ 254 218
Gen X	€ 660 051	2,63	4,00	2,75	3,10	77%	€ 510 903
Gen BB	€ 365 592	2,09	3,62	1,82	2,48	62%	€ 226 930
Silent Gen	€ 180 907	0,80	1,50	2,32	1,53	38%	€ 69 025

TARGETED GENERATIONS

- The main goal of segmenting the market is to identify the most valuable segment groups to address according to the criteria defined. Generations X and Y seem to be the most valuable segments to target (highest expected savings value), as they show the best combination of savings opportunity and intention to adopt the app.

$$\text{yearly avg. number of visits}_{age} = \frac{\text{yearly visits}_{age}}{\text{estimated number of clients}_{age}}$$

$$\text{est. yearly avg. number of calls}_{age} = \frac{\text{estimated yearly number calls}_{age}}{\text{estimated number of clients}_{age}}$$

On a real case scenario, the marketing communication focus should be on both generations X and Y. However, reinforcing the company's request, the group's communication suggestions will be, from now on, broad and with a mass market approach.

1.2. ADOPTION & UTILIZATION PLAN | positioning (11/29)

On a perceptual matrix map with axes Perceived Ease of Use and Perceived Usefulness, MyCuf should be positioned in the first quadrant, the furthest from the center as possible. With a solution-to-problem approach, MyCuf is an easy to use healthcare convenient app.

Targeted segments should be addressed with a clear and specific rational approach.

The group believes that **the optimal way of addressing the market should be through a solution-to-problem approach**, aimed at making sure the app is **perceived in the customers' mind as a powerful tool**. The two most relevant drivers of customer adoption intention will be considered:

- Perceived Usefulness
- Perceived Ease of Use

Therefore, clients should be convinced of two aspects:

1.

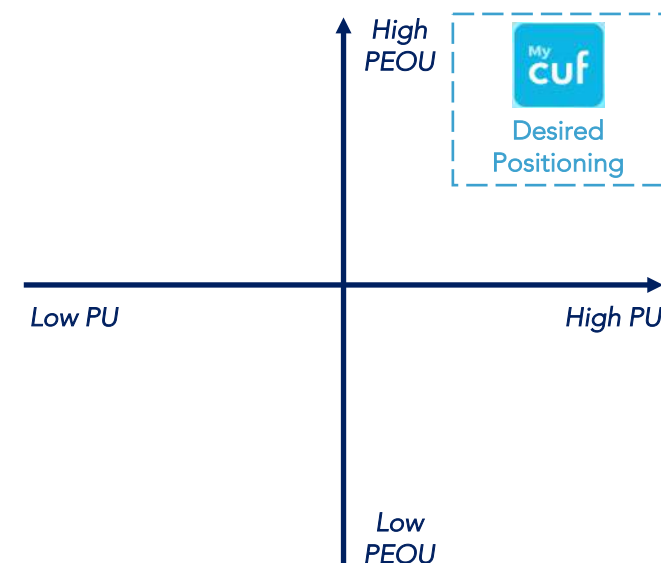
The **intrinsic value of the app** which, given the administrative efficiency focus, should be **communicated to clients as a powerful mean to have a more convenient healthcare management** (prescriptions and medical results whenever clients need them, scheduling/confirming/canceling appointments with a few clicks). Additionally, the **advantage of reducing the waiting time** and, consequently, the time spent in the hospital facilities*, must be communicated (check-in, payments, exam collection without waiting).

2.

Although it may look like a complex and difficult service to understand, **the process behind the usage of the app must be as easy as possible** and perceived as that.

Thus, drawing the customer's perceptual positioning map with the help of a two dimensional matrix with axes **Perceived Ease of Use** and **Perceived Usefulness**, MyCuf should be **positioned in the first quadrant, the furthest away from the center as possible**, reaching **maximum PE and PEOU values**.

There are a few ways to help deliver this message: either through a more rational approach or using an emotional (almost humoristic) method, as the current video segments "A Avó Explica" relate to.

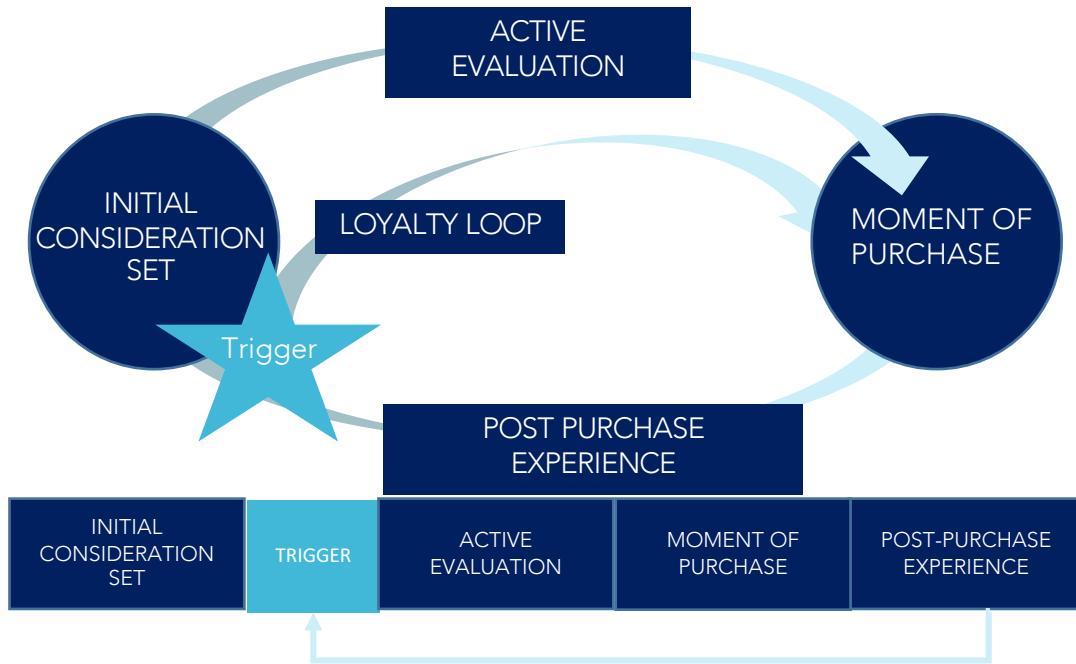


"With MyCuf, you can conveniently manage your healthcare. An easy and user-friendly App"

– Rational Approach

1.2. ADOPTION & UTILIZATION PLAN | when to communicate (12/29)

According to the consumer decision theory, it is extremely important that MyCuf is present in the customer's mind, not only after, but even before the need urges.



Source: McKinsey & Company¹

"Brand awareness matters: brands in the initial-consideration set can be up to three times more likely to be purchased eventually than brands that aren't in."
In McKinsey & Company

The **consumer decision theory** tells us that consumption **decisions** (in respect to which brands to buy from) **happen even before the need actually exists**, since there is a set of pre-established alternative brands in consumers' minds that are there due to media communication and post-purchase experiences/comments¹.

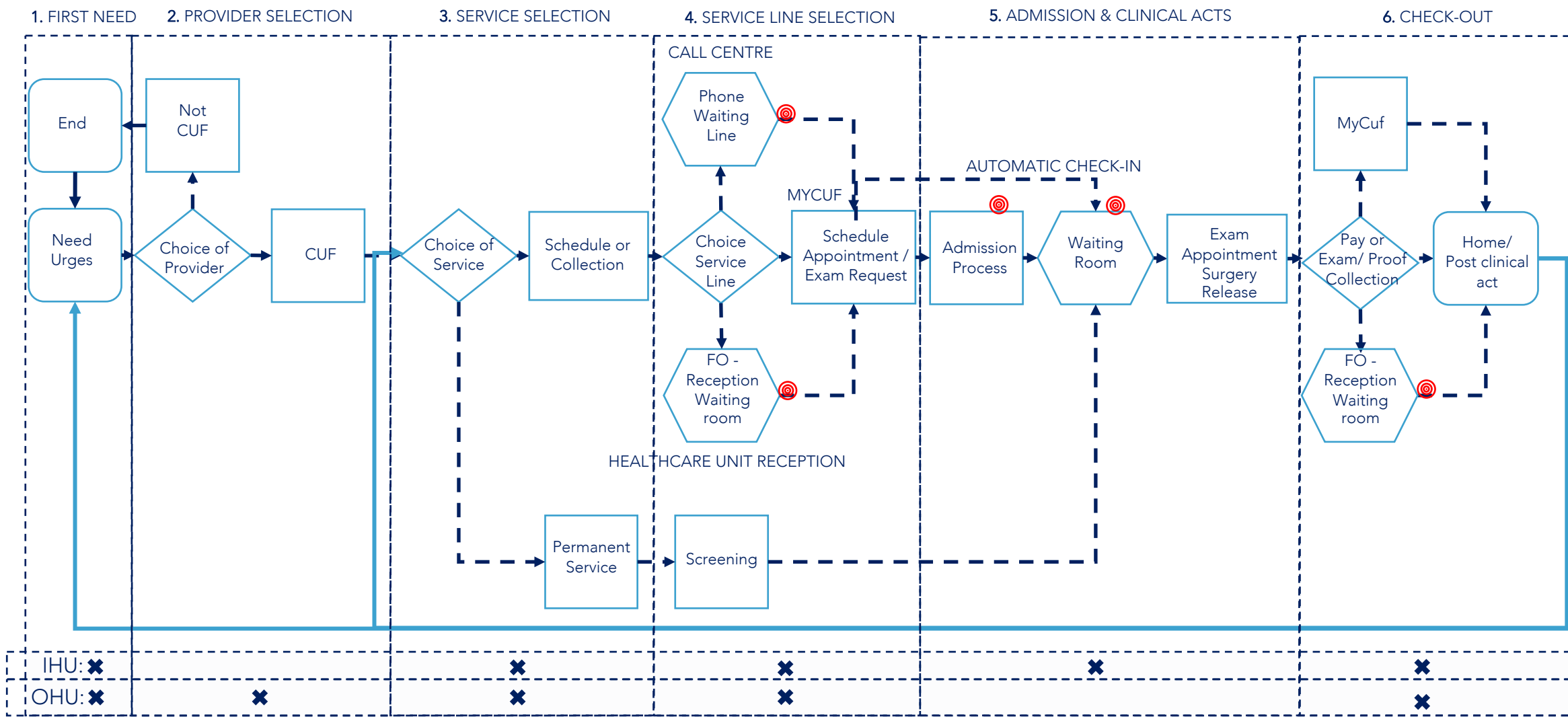
- Considering MyCuf's context, its alternative "brands" correspond to the existing traditional channels of communication: the Front Office and the Contact Center. In order to be present in the pre-established selection set of "brands" and to avoid that the FO and the CC are chosen over it, it is extremely important that before a certain need is triggered, MyCuf is already present in clients' minds as **a strong alternative to the remaining service lines**.
- On a hypothetical situation where a consumer is in the waiting room, waiting to proceed to his medical exam, MyCuf should be presented as an alternative to collect the results of the exam, in opposition to going to the FO.

Overall, there are many triggers that are likely to be actioned in the consumer's mind that can be satisfied by the use of the MyCuf app. A few examples involve scheduling appointments, requesting exams, checking exams' reports or paying.

The strategy should focus on **understanding where those needs urge, what are their drivers and how the ideal measures should be implemented** in order to be present in both their initial-consideration and active evaluation sets.

1.2. ADOPTION & UTILIZATION PLAN | customer journey: where to communicate (13/29)

Customer needs are likely to be triggered either inside or outside the healthcare unit. The communication should not only happen outside the healthcare units but especially inside (waiting rooms or lines), where the pain points tend to happen more often.



1.2. ADOPTION & UTILIZATION PLAN | customer journey: where to communicate (14/29)

Many customer pain points are time-related. The communication strategy should aim at making the customer aware that these issues can be mitigated through the app. The perfect place would be waiting rooms/lines, where most of these pain points happen.

IMPROVING THE EXPERIENCE BY ASKING THE RIGHT QUESTIONS

"It's better to start from a people's perspective. Companies can begin to study key aspects of the customer's experience and try to understand and resolve core pain points".¹

Pain points can be found by asking simple questions such as: "What do customers really need, desire, and aspire to?"



UNDERSTANDING CUSTOMERS' PAIN POINTS

Customers' main pain points occur in the waiting rooms/lines of the healthcare units/Contact Center. As diagnosed during the individual in-depth interviews, this is related to the fact that **people perceive waiting time as a synonym of inefficiency**. Customers want to spend the least possible amount of time waiting in order to use that time doing what they really care about.

"If only I could know my exact calling time, I would be doing something else until then"
"If I could have done this at home"



Win-win situation

This represents a big opportunity for JMS as its goal to improve efficiency in terms of time is aligned with the client's. The company's strategy should address this need to "heal the pain" clients feel in waiting moments.

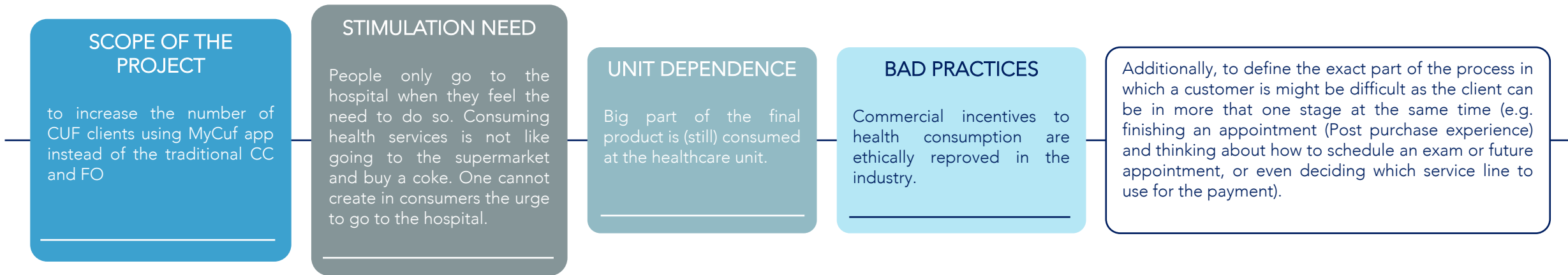
In a perfect scenario, the client should either have zero waiting time or a very clear estimation of the waiting time.

- Possible approaches to both alternatives have been studied and the company has decided not to make the average waiting time for all the services at the units available, except for the already available permanent service's waiting time.
- This decision was based on **possible customer dissatisfaction issues that could result from the poor accuracy of those estimations**. The healthcare industry is complex, making it difficult to forecast the exact time a clinical act may take.
- Instead, **the company has chosen to focus its communication through MyCuf on lowering the customer waiting time up until zero minutes**. This should be communicated to clients in the waiting rooms/lines at the units.

1.2. ADOPTION & UTILIZATION PLAN | how to communicate: paid, owned & earned (15/29)

As previously seen, it is important to make sure that MyCuf is present before and after the need urges, which can happen either in or outside the healthcare unit. Being so, the communication channels suggested will be a combination of owned, paid and earned media.

Having decided on the time (when) and place (where) for the communication to happen, practical recommendations that match the strategy defined are needed. For that, it is important to keep in mind **certain particularities about the industry and the overall project** itself:



- Although there are plenty of channels that could be used to deliver the message without spending any extra resources (**owned** media – website, healthcare unit, social media/blog, etc.), the group believes there is significant added value in complementing those with **paid alternatives** (paid media – display adds, paid search, billboards, etc.).
- As for any service, word-of-mouth, recommendations and citations (**earned** media) are hard but equally important channels to control, as they pay a special role in, at least, two moments of the customer decision process: the active evaluation and the loyalty loop. The Client should make efforts to guarantee good synergies from this type of promotion channel.



The healthcare unit space can be used as a major source for communicating the app to clients, as they spend a lot of time at the units. The group recommends as the main communication strategies the use of banners, the display of allusive messages in tickets and in TVs, the creation of explanatory flyers, the spread of QR Codes and the development of a MyCuf stand.

PHYSICAL UNIT PROMOTION (1/2)

BANNERS

- In the CUF units visited throughout the project, the group realized there was an overall noticeable neglect of MyCuf's promotion. Still, the company is already promoting the app with the help of banners that are located in strategic points, such as some waiting rooms, as already suggested by the group.
- Bringing back the concepts of McKinsey's consumer decision process, the main goal of having banners in strategic locations should be to generate awareness for the upcoming needs the consumer might experience in the process. So, the **message in each banner should be different and accordingly to possible future needs clients might have.**
- As an example, let us consider the waiting room for exams procedures. The message on the banner in this specific room should read "Sick of waiting? You can easily collect your exam at home with MyCuf" instead of "You can schedule your exams with MyCuf". Or in waiting rooms assigned for check-in, appointments and exams scheduling, the message should read "You can easily pay for your appointments and exams with MyCuf" instead of "You can schedule your next appointment with MyCuf".
- Additionally, **promoting the app at the moment the customers feel the "pain"** could also be a good strategy. If someone is waiting to Check-in at the unit, they will be glad to know they could avoid that waiting time if there was a banner informing them that check-in could be performed through the app. In fact, Check-in is still not available but the feature is being tested and must be promoted once it's accessible through MyCuf.



Picture 1 - Banner



Picture 2 - Ticket

TICKETS

- Collected by the clients in the kiosk machines available at the units, tickets differ according to the selected service (Payment, Appointment, Collection of Exams, etc.) and represent a very relevant touch point with the clients. These tickets are in clients' hands until the moment they are called to go to the FO.
- **Adding a written promotional message personalized by the selected service** and possible subsequent needs that MyCuf can help satisfy would increase the chance that clients recognize value in the app.
- A practical example would be to include a message in the ticket for "Schedule Exams" reading "You can collect your exam at home with MyCuf".
- These "personal" messages can be particularly relevant for the tickets extracted from the automatic check-in machine as, like seen before, people that already perform the automatic check-in tend to be more technology propense.
- Targeting them would be an easy kill but currently there are no messages in this type of tickets.

1.2. ADOPTION & UTILIZATION PLAN | recommendations (17/29)

The healthcare unit space can be used as a major source for communicating the app to clients, as they spend a lot of time at the units. The group recommends as the main communication strategies the use of banners, the display of allusive messages in tickets and in TVs, the creation of explanatory flyers, the spread of QR Codes and the development of a MyCuf stand.

PHYSICAL UNIT PROMOTION (2/2)

TVs & FLYERS

- Although the goal is to avoid that people spend so much time in waiting rooms, the fact is that there is still a relevant part of the service time that is spent waiting in a room for the next step in the customer journey process.
- Making use of the existent TVs and tables in the rooms to advertise the app either with the help of the tickets' TV or with written content in flyers is a strategy to take into consideration. This way, the company will make use of the customers' "dead time", where they have actual time to be exposed and explore the app, making them aware of its usefulness.
- If the company wants to create flyers with different messages, the strategy recommended by the team would be the same as the banners'.

MYCUF STAND

- Also related to leveraging customers' spare time in the waiting rooms, and directly in line with the diagnosed barrier "complexity of registering or usage", the team suggests the company to have a MyCuf stand present in, at least, the biggest waiting room of every unit.
- Much similar to what happens in the kiosk automatic machines, where the hospital already has, in some places, a collaborator helping, the idea is to have promoters showing that the app can be an easy way of spending less time waiting.
- The promoters must address people and help them with the download and the registration process. Promoters should have full knowledge about the app's benefits, as they should will provide answers to clients that need extra information about MyCuf.

QR CODE

- An easy download process is the first step towards conveying JMS' desired message – "MyCuf easy to use" – to its clients.
- The group recommends including QR codes in every form of physical communication (Banners, Flyers, Stands), directly connecting the clients to the app's download platform (if the client has never done it before) or to a specific app feature (if the client is already a user).
- As an example for someone that has the app but is not aware that it possible to perform payments through it, the QR code associated with a banner or a flyer referring to that feature ("Pay for your Appointments through MyCuf") must direct users to that process in the app.



1.2. ADOPTION & UTILIZATION PLAN | recommendations (18/29)

Staff members are key touch points in this industry. The company should invest in increasing its Employee Net Promoter Score¹ by letting their employees know the app is aligned with their interests and only then ask their help to promote the product.

EMPLOYEES AS PROMOTERS (1/2)

ADMINISTRATIVE STAFF - FRONT OFFICE

- Complementing the flyers and banners in the FO, the **employees should be more active towards the use of the app.** In fact, as they can immediately have access to “app status” of the client through their IT systems (as the group confirmed at the units), they can use that information and quickly **mention the existence and benefits of MyCuf to the non users or finish the Premium activation of those who are still basic users.** They can even simply suggest the clients to visit the MyCuf stand.
- For the ones that are already users, the employees on the FO can mention specific features that are in accordance with the client’s process or possible subsequent needs such as collecting the exams performed.

MEDICAL STAFF - NURSES AND HEALTHCARE TECHNICIANS

- Apart from the FO, other employees should also have an active position towards the clients about the use of MyCuf.
- **Healthcare technicians can have a positive impact** by simply mentioning that “You can have access to your exams’ results at home with MyCuf and avoid a lot of waiting time and lines at the units.”



HOW?

Front Office and Medical Staff should be able to help engage clients with MyCuf since they have clients’ trust and reliability.

The company should make an effort to increase its Employee Net Promoter Score¹ by assuring that employees understand the benefits of MyCuf and that the app is in line with their own interests and by **developing rewarding systems** that compensate satisfactory results of the staff communication.

As incentives are a sensitive matter given the nature of the industry, the team suggests **employees to be rewarded as a whole**, rather than individually, according to their overall ability of communicating and recommending the app to clients.

1.2. ADOPTION & UTILIZATION PLAN | recommendations (19/29)

Medical Doctors (MD) represent the most important touch point in the company. For everything they represent, the company should leverage on their capacity to influence the clients.

EMPLOYEES AS PROMOTERS (2/2)

DOCTORS IN THE APPOINTMENT

- It would be a great opportunity to increase MyCuf's adoption and usage if **doctors could, in a subtle way, suggest their clients to perform a few tasks with the help of the app.** Doctors should not be considered a "selling point" but they could definitely have a more active role in promoting it for the most critical processes. For instance, tasks such as checking the prescriptions or even past exams' reports can be encouraged if the doctor not only mentions MyCuf but asks to check that information through the client's app. **Clients that already have the app will most likely feel safer and more familiar with its use whereas clients that do not yet use the app can become aware of its benefits and be shown the informative flyer.**
- This implies doctors to be familiar with the app and, once again, having in consideration the Employee Net Promoter Score, they must be convinced about the app's benefits before promoting it.
- The group suggests the client to establish more sources of information about MyCuf inside the doctors' offices such as the ones previously suggested: flyers and banners with QR codes.

MD EMBASSADORS

"Influencers must have a combination of three key factors: reach, contextual credibility and salesmanship. The higher these three factors, the higher the influence potential of an individual. Contextual credibility: the level of trust and authority given by the audience based on the influencer's perceived knowledge and expertise on a specific topic."

In Forbes¹

- Leveraging on the credibility and trustworthiness of these professionals could be a good strategy. Using "celebrity" doctors like Dr. David Paiva as ambassadors of MyCuf could lead to higher levels on engagement to the app.

HOW?

In an industry such as the healthcare, Medical Doctors always resemble a source of confidence as clients are relying their health and safety on them. As such, if an MD promotes MyCuf, clients will be led to consider MyCuf as a powerful and efficient tool, being very likely to use the app.



¹Forbes, 2017, *What Is Influencer Marketing And How Can Marketers Use It Effectively?*

1.2. ADOPTION & UTILIZATION PLAN | recommendations (20/29)

In the Appstore, improvements can be made. The company should include keywords in the app's name, make full use of the video and preview photos available and work on the clients' reviews that are mostly related with the app's issues.

DIGITAL – APP STORE OPTIMIZATION

After the client is aware of the app, he should download and try it. Consumer perceived ease of use decreases if the app is hard to find in the AppStore*. Therefore, a small set of measures will be recommended to improve the chance of the app appearing in the client's smartphone and, hopefully, increase the user convertibility in the end.

NAME OF THE APP

- A study performed with the help of the Appbot revealed the most downloaded apps have names compiling around 36 characters and between 5 to 6 words¹. According with the study, an advisable strong app name should include 2 essential aspects: A name plus 2 to 6 strong keywords connected by an hyphen "-".



RATINGS

- Word-of-mouth is an important decision factor in every consumer mind. *"Apptentive found that almost all of the most successful apps have an average rating of 4.0 or more and that 60% of people "usually or always check ratings before downloading an app."*¹
- The company should provide answers to the complaints of the current users as they are responsible for the low rating scores. Compared with the other private healthcare players' apps, MyCuf's score of 3.8 in Apple's AppStore is the worst. Fundação Champalimaud obtained 4.7, Trofa Saúde 4.3 and Hospital da Luz 3.9.

APPSTORE PREVIEW

- AppStore allows up to 5 photos in the preview zone. There is also the additional option of making available a short video explaining how the app works.. At the moment, the company is promoting the app exclusively using 4 photos that are related to Login, Waiting time in the Permanent Services and Appointment Scheduling. The group suggests the company to make full use of the 5 available image slots to share images related to the main processes and their description. Additionally, the recently added video option should include the video that was already made for the Facebook landing page.



DOWNLOAD POP-UP

- Currently, every time someone enters the healthcare unit center, there is a pop-up link that re-directs them to CUF's free Wi-Fi service. The group recommends a complementary MyCuf pop-up window, such that every time clients have access to the unit internet service, they are presented with the app's download option through a click that immediately redirects to the AppStore to proceed to the download of the app.

¹Single Grain, 2017, *Marketer's Guide to App Store Marketing*

*the name "Appstore" will apply for Apple's Appstore and Android's Playstore

1.2. ADOPTION & UTILIZATION PLAN | recommendations (21/29)

After the download step, the client is still not an active user. The possibility of trying before buying (registering), having a great onboarding experience and including push notifications are measures that will help convert the client into an active user.

DIGITAL – INSIDE-THE-APP OPTIMIZATION

After downloading the app, the client will initiate the experience inside the platform. Everything should be done to offer the client the best possible first contact with the app in order to have the client becoming an active user, which only happens after the registration moment.

TRIAL FEATURES

- Studies demonstrate that in the absence of “comprehensible information”, clients determine their own criteria for judgement of the product.¹ Allowing the customer to explore the app as much as possible without the obligation to commit to the product (complete the registration), will enable a more accurate judgement and will likely increase the perceived usefulness of the app.
- The company is currently performing this in the website, where it allows the client to schedule appointments and request exams until the confirmation stage, only then requiring the login/registration information. The group suggests adding this feature to the mobile app. This will be particularly important in for the customers’ perceived usefulness of the app (in the mobile platform).

ONBOARDING EXPERIENCE – WALKTHROUGHS & TUTORIALS

- It involves offering the client proper information about the benefits of the app, showing how the main features can be used in a tutorial mode. MyCuf already provides a very positive onboarding experience but it can still explore a few extra features such as Payment and Check-in (once it is implemented).



À sua nova aplicação

Anova a MyCuf interface. Use sempre



Várias consultas, uma só marcação

Mais de uma vez, use a MyCuf para marcar



Sempre consigo

Tenha sempre a MyCuf no seu dispositivo



Acesso mais fácil

Para um acesso mais fácil e rápido

HELP DESK

- Currently, the company is providing the customer the chance to report the app’s problems with the help of written messages. Most of the issues are technical related.
- Knowing from the Contact Center visit that there is a Backoffice team that deals exclusively with calls related to MyCuf’s issues, we recommend including in the app a “call to action” feature directly connecting the app to the CC Backoffice team, with the purpose of providing immediate response to the clients’ problems. This is a crucial aspect in the usage of the app since the simple fact of having to wait for an answer on the problem might generate some aversion to the app.



PUSH UP NOTIFICATIONS

- This feature will have as main purpose the creation of extra interaction points between the app and its users. “Push notifications offer a promising strategy for enhancing engagement with smartphone-based health interventions”².
- By facilitating their daily life medical routines (workshops / news / blog, medicines to take in the day, etc.) or by helping them get prepared for the next appointment or exam. The clients will unconsciously increase their connection and familiarity with the app and perform a higher number of operations through the app.

¹ Gavin Finn, 2008, *Why pre-purchase behavior matters*

² University of Rochester, 2017, *The Effect of Timing and Frequency of Push Notifications on Usage of a Smartphone*

1.2. ADOPTION & UTILIZATION PLAN | recommendations (22/29)

Including recording messages promoting MyCuf while waiting to speak with the CC, setting MyCuf by default for every CUF client and implementing pop-up windows suggesting the download of the app when accessing the units' Wi-Fi are technically easy to implement measures that will reach out to more clients.

OTHER CHANNELS

CONTACT CENTRE WAITING LINES

- Contact Center's official numbers for 2017 indicated 20 seconds as the average waiting time per inbound call (from client to CUF). On top of the waiting music background ("Much appreciated by the clients. They love the music! We even have received some calls asking the name of the song."- Gonçalo Teixeira, Contact Center Director), the group suggests including a simple recording message to create awareness about MyCuf.
- The message should address features related to the following top 3 issues of the service line:

SCHEDULING &
CONFIRMATION OF
SCHEDULING

317K

RE-SCHEDULING &
CANCELATIONS

117K

AVAILABILITY OF EXAMS'
RESULTS

77K

"With MyCuf you can schedule, confirm, cancel and re-schedule your appointments and exams. If you want to know if your exam is ready to be collected, just go to MyCuf and if so, check the results right away!"

MYCUF BY DEFAULT

- Although this is not a pure communication strategy, creating a MyCuf account for every CUF client by default will represent one of the easiest ways of converting non-clients to, at least, non-active users. The team expects that clients will more likely use the app if their account is already created.
- This may seem a simple measure but, in fact, there are issues concerning consumer data protection (one of the barriers diagnosed in the qualitative research) that may complicate this process.

Creating MyCuf Blog and Community could be a good strategy to associate MyCuf with an everyday tool. It would help overcome the previously diagnosed barriers as blogs allow the company to relate with the community and to create buzz that will help convert the readers into clients.

DIGITAL – MYCUF BLOG & COMMUNITY

Leveraging on its credibility and strong presence in the healthcare industry, a **healthcare blog and/or community should be created** by the company. There should be a direct connection to the name MyCuf to establish the app as an everyday tool. (See Appendix 6)

These channels would target people that are usually interested in finding information about the latest updates on diseases and health information in general. Through them, CUF clients could also learn more about the app and become more familiar with its features, leading them to perform more tasks through it. The content provided via Blog/Community would have to be shared in the current social media channels to create awareness and social buzz.

MAYO CLINIC BLOG SUCCESS CASE



"[Mayo Clinic] pioneered the way in enabling patient-to patient communication with blog (...) practitioners understand the power of word of mouth, which is embedded into its culture through its (...) innumerable blogs on various topics (...)".

"Through these channels not only do patients and followers interact with one another but are frequently sharing items of use with each other."

in Journal of Health Management, SAGE Journals, (2013)¹

- Mayo Clinic is a success example on how to use blogs to promote a brand in the hospital industry. It should be used as a benchmark for social media and content communication.
- The medical center has been studied due to its success in the hospital blogging industry. It counts with video content on medical news featuring the clinic's physicians/researchers (Mayo Clinic News Blog), with brief conversations/news on diseases (MC podcast blog), and with patients' stories that are shared in social media (Sharing MC).

MYCUF BLOG

- It should include **healthcare related content, featuring the company's most famous medical professionals**.
- The app MyCuf should be the main access point to the blog.
- All the **content must be easily shared** either by the company in its social media pages, or by the people in general.



MYCUF COMMUNITY

- Open discussion should be encouraged but the community should also be **supervised by healthcare professionals** that provide answers to the main subjects being discussed.
- The remaining specifications should be the same as MyCuf Blog's, with the difference that, since this is an online community, it has to allow the general public (and not just CUF clients) to participate in the discussion. Being so, this community should have a very easy registration process.

These recommendations are in line with some of the barriers identified in the qualitative analysis. MyCuf Community was even mentioned by some participants of the brainstorming session as a tempting feature to be added to the app.

¹ SAGE Journal of Health Management, 2013, *Mayo Clinic Blogs Case Study*

1.2. ADOPTION & UTILIZATION PLAN | recommendations (24/29)

Social media is all about marketing strong content. MyCuf has revealed very little presence in the existent social media when compared to the Mayo Clinic's app.

DIGITAL – SOCIAL MEDIA

The following analysis was made with the purpose of comparing CUF and Mayo Clinic's performance (established benchmark for social media and content share) in promoting their apps:



MyCuf has a dedicated landing page in the profile of the company with an informative/explanatory video and an extensive list of features of the app.

Searching the words "MyCuf" only produces 4 results, which means the app has only been mentioned 4 times throughout CUF's Facebook page.

This is a very small number when comparing with "Mayo Clinic App"'s 360 search results. (See Appendix 7)



CUF does not have an Instagram account and only 3 promotional content articles were identified, all shared by individuals.

Mayo Clinic Instagram account has content which is mainly visual-motivational and of public health interest, counting with more than 39k followers.



Both healthcare providers are not present on LinkedIn actively. Still, there were 2 articles that made a reference to MyCuf, both shared by individuals. As for Mayo Clinic, this number is bigger as people also shared some case studies.



CUF does not have a Twitter account and the only reference to the app found in the social network was by a newspaper (*Jornal Dinheiro Vivo*) in an article. Mayo Clinic Twitter account has almost 2 million followers. The mobile app is frequently shared through the content sharing



CUF's YouTube page has several videos from the segment "A Avó Explica" with information on MyCuf. Searching for "MyCuf" produces 52 results (not all related to the app), which is an extremely small number when compared with the 460 results produced by the "Mayo Clinic App" search.

When compared with the benchmarked Mayo Clinic, **CUF is still far from being well positioned in social media**, specially in what concerns MyCuf's promotion. The team recommends an investment in the presence of the brand CUF in social media through paid advertisement, and, most importantly, by sharing content on MyCuf Blog or MyCuf Community.

1.2. ADOPTION & UTILIZATION PLAN | recommendations (25/29)

By improving its Search Engine Marketing (SEM), MyCuf will be able to engage with more people online through the website and, consequently, through the mobile app. The ultimate goal of this marketing technique is to increase the traffic and utilization of the app.

SEM main channels

The main goal of investing in Search Engine Marketing is to get more visibility in search engines, either by getting **more free traffic or paid traffic**. As such, SEM can be done in two distinctive ways¹:

- **Search Engine Optimization (SEO):** mechanisms of web content optimization that intend to increase website's visibility on Search Engine Results Pages (SERPs)².
- **Paid Search Advertising (PSA):** Paid per click adds that appear in websites or in the SERPs.

SEM powered by Google

Considering Google's leadership in Portugal terms of search engine market share (over 90%²), the team conducted great part of its analysis and recommendations for SEM considering Google as the reference.

According to Google Academy (Google's online school), the algorithm through which Google ranks web pages on SERPs depends on **4 factors**:

CONTENT	Similarity between the words digitized on the search box and the written content of websites
CONVERSION RATE	Average number of conversions* per visit** to a website
PRICE	Value payed to Google in order to advertise a website on another websites, or on the SERPs
POPULARITY	Number of visits ⁴ to each page of a website

- Content and Conversion Rate are related to SEO since each website can decide which words to use in order to match with those that are more frequent in search boxes. Simultaneously, websites can design user-friendly pages so that web users find what they are looking for easily when visiting the website.
- Price is intuitively connected with PSA.
- Popularity is a factor that not only results from the combination of the 3 previously explained success factors, but also from its own success. More visits today will boost the website ranking tomorrow and other forms of marketing.

¹ University of Salford, 2010, *From search engine optimization to search engine marketing management: development of a new area for information systems research* from

² Statcounter, 2018

*An action that is counted when someone opens a different page within the same website (for example, opens a tab or watches a video)

**Google considers a visit either when a web user goes directly to a website without using the search engine (this is only possible to assess on Google's browser), or every time the user clicks on the website's link that appears on SERPs.

1.2. ADOPTION & UTILIZATION PLAN | recommendations (26/29)

MyCuf's written content on web must be strategically developed to reach as many web users as possible. The same applies for the website's design as it must be extremely intuitive for users.

DIGITAL – SEARCH ENGINE OPTIMIZATION

CONTENT

Regarding written content optimization, MyCuf must be described on the website with words that web users search for and that will lead them to visit and interact with MyCuf related pages. Google Analytics¹ provides the website administrator information on the keywords that optimize the free traffic from search engines.

CONVERSION RATE

DIAGNOSIS

The interaction of a web user across different pages within the same website is largely connected to its design². It is **crucial to provide the information in a user-friendly and organized way**. Otherwise, the user will quickly lose interest and an alternative might be found.

In what concerns MyCuf, if its layout is disorganized and not appealing to the clients, even interested users in the channel might give up and use the other existing communication channels.

We used Google's Mobile-Friendly Test³ to assess MyCuf's website for mobile devices (see Appendix 8). Considering that MyCuf's website has a different design for mobile and for desktop devices, the ideal assessment to the user-friendliness of its current pages would include both designs.

ISSUES & SOLUTIONS

The trial version of Mobile-Friendly test evaluated seven pages of MyCuf's website³. 4 of those 7 pages revealed 2 types of issues:

- The content was wider than screen size
- The clickable elements were too close from each other.

The solution to tackle these issues is to re-design the pages that are not mobile friendly.

At the same time, users' interaction with MyCuf can be improved by **redirecting the user from the web site to the app in an earlier phase of the process**. Currently, users can perform some tasks such as scheduling an appointment through the website that don't necessarily redirect them to the app or require a MyCuf account.

¹ Google Analytics is a freemium web analytics service offered by Google that tracks and reports website traffic.

² University of Salford, 2010, *From search engine optimization to search engine marketing management: development of a new area for information systems research* from

³ Trial version of the official test by Google that evaluates the user-friendliness of websites on mobile devices. The trial (free) version has a limit of 7 pages per website. Therefore it was not possible to address all the website pages.

1.2. ADOPTION & UTILIZATION PLAN | recommendations (27/29)

One of the most efficient ways to redirect users from website to the app is to properly link the two versions and to consider in detail clients' possible journey.

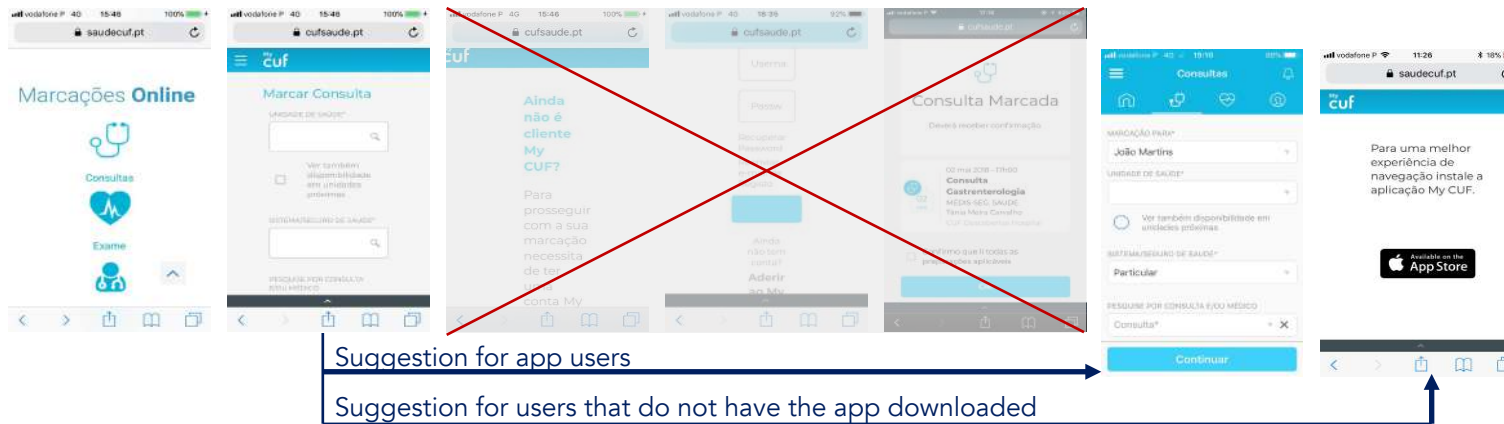
DIGITAL – SEARCH ENGINE OPTIMIZATION

CONVERSION RATE

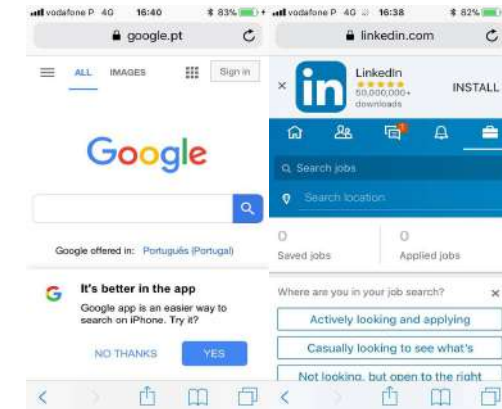
IMPROVEMENT SUGGESTIONS

1. The following sequence of images represents a suggestion for redirecting the users from website to the app more efficiently when they are using mobile devices. The example applies for scheduling appointment but can be extended to any feature.

2. Another idea to improve users' interaction with MyCuf is to create a "link-section" to the mobile AppStore, right on top of the page or in the bottom part of the website.



The 5 print screens show the current process for scheduling appointments. Under the grey shadow and the red cross are the steps that can be substituted by redirecting the client to the app. The redirection must be different, depending on whether the user has the app downloaded or not.



Print screen of Google and LinkedIn pages on mobile web.

Paid Search Advertising can complement the Search Engine Optimization by taking advantage of the information provided by Google Analytics and by broadening the range of web users that know the app MyCuf.

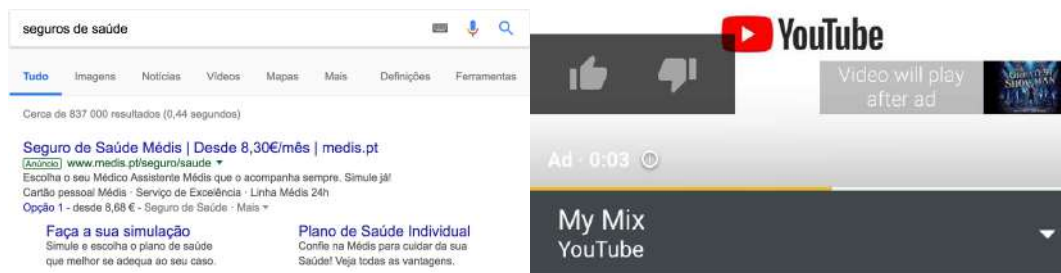
DIGITAL – PAID SEARCH ADVERTISING

PRICE

“Never let your ads write checks that your website can’t cash.” - Avinash Kaushik

MyCuf can be advertised through Google AdWords – Google’s online advertising service. Advertisers pay for 3 types of ads¹:

- **Search Ads** – Appear near Google search results when people search for terms that are relevant to the ad’s keywords
- **Display Ads** – Advertised across the web on Google Display Network*
- **Video Ads** – Showed on YouTube, either on uploaded videos, or on streaming video content



Examples of online ads, by Google AdWords

The ads’ frequency of exposition is determined by an algorithm developed by Google, which is positively correlated with the following 3 factors:

- **User preferences****: similarity of meanings between keywords advertised and keywords from the users preferences, the more frequent the ad will appear to these user;
- **Campaign budget**: amount of money pre-defined by the advertiser, regarding the cost-per-click*** associated to each ad’s keyword;
- **Conversion rate**: the same concept applied to rank websites on SERPs. When creating an ad, a company can decide what online actions are valuable for its business (e.g. schedule an appointment). Google measures what percentage of users that clicked on the ad, effectively execute those actions.

¹ Google AdWords online Help Forum.

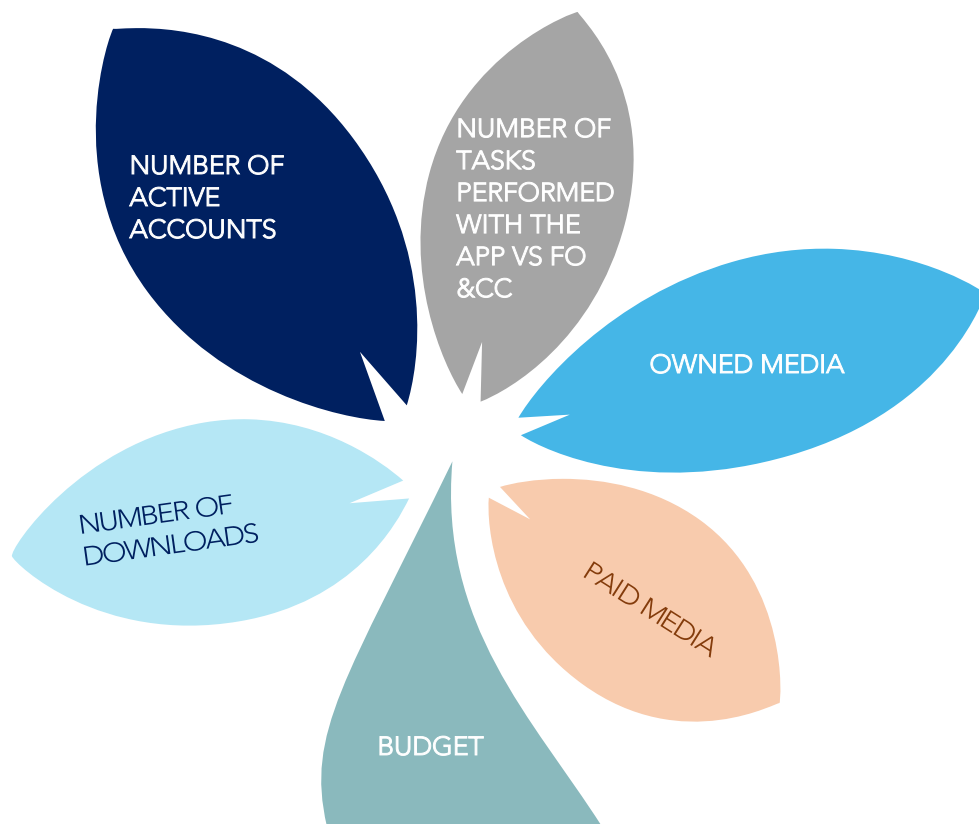
* A group of more than 2 million websites, Gmail accounts and apps where AdWords ads can appear

** Assessed through users’ history on web, namely the most frequent themes he/she uses to search.

*** This value is dynamic, once it depends on the popularity of keywords among web users.

1.2. ADOPTION & UTILIZATION PLAN | budget & KPIs (29/29)

To assess the overall performance of the app, number of registrations, number of tasks performed with MyCuf in percentage of total features available, and number of content views will be the most relevant KPIs.



- **NUMBER OF DOWNLOADS BEFORE VS AFTER**
 The difference between the number of app downloads before and after the Adoption & Utilization Plan will give evidence of the value added by the recommendations of the team to JMS.
- **NUMBER OF ACTIVE ACCOUNTS BEFORE VS AFTER**
 In terms of message impact, it will be possible to compare the number of active accounts before and after the A&U plan. This will be the **most important KPI** in order to conclude on the effectiveness of the implement recommendations.
- **NUMBER OF TASKS PERFORMED WITH THE APP VS FO & CC**
 It will be possible to compare the number of tasks (appointments scheduled, canceled, exams scheduled, payments etc) through the app with the performance through the other traditional channels such as the FO and CC.
- **OWNED MEDIA**
 - Number of Visits Social Media
 - Number of Visits Website/ Blog/ Forum
 - Number of Views of Content Marketing
- **PAID MEDIA**
 - Number of Clicks in the ads

No ceiling strategy: Concerning the budget for the communication, the Client has expressed the intention of setting a no ceiling strategy, in order to increase the possible set of alternative measures. The cost of developing and implementing any of the recommendations will, therefore, be excluded from the final suggestions.

NA – Non-Available Data
 ND – Non-Disclosed Data
 (?) – To be defined

	KPI	Total CUF	MyCuf	Goal
	# App Downloads	NA	345 000	(?)
Major Goal	# Active Accounts / Registrations	NA	310 730	500 000
Usage	Operations performed with MyCuf (in % of CUF)	NA	ND	(?)
	# Appointments & Exams	ND	ND	(?)
	# Exams and Prescription	ND	ND	(?)
	# Payments	ND	ND	(?)
Marketing	Owned Media (in number)			
	# Visits Social Media	ND	NA	(?)
	# Visits Website / Blog / Forum	ND	NA	(?)
	# View of Content Mrktng	ND	NA	(?)
	Paid Media			
	# Clicks in the Adds	ND	NA	(?)

A G E N D A



JOSÉ DE MELLO SAÚDE

DIAGNOSIS

1. THE HEALTHCARE INDUSTRY
2. THE PORTUGUESE HEALTHCARE SECTOR

ANALYSIS

1. JOSÉ DE MELLO SAÚDE
2. MYCUF
3. MYCUF PRO

RECOMMENDATIONS

1. HOW CAN MYCUF INCREASE JMS' EFFICIENCY?
 - 1.1. MyCuf Client Development
 - 1.2. Adoption & Usage Plan
 - 1.3. MyCuf PRO

FURTHER ANALYSIS

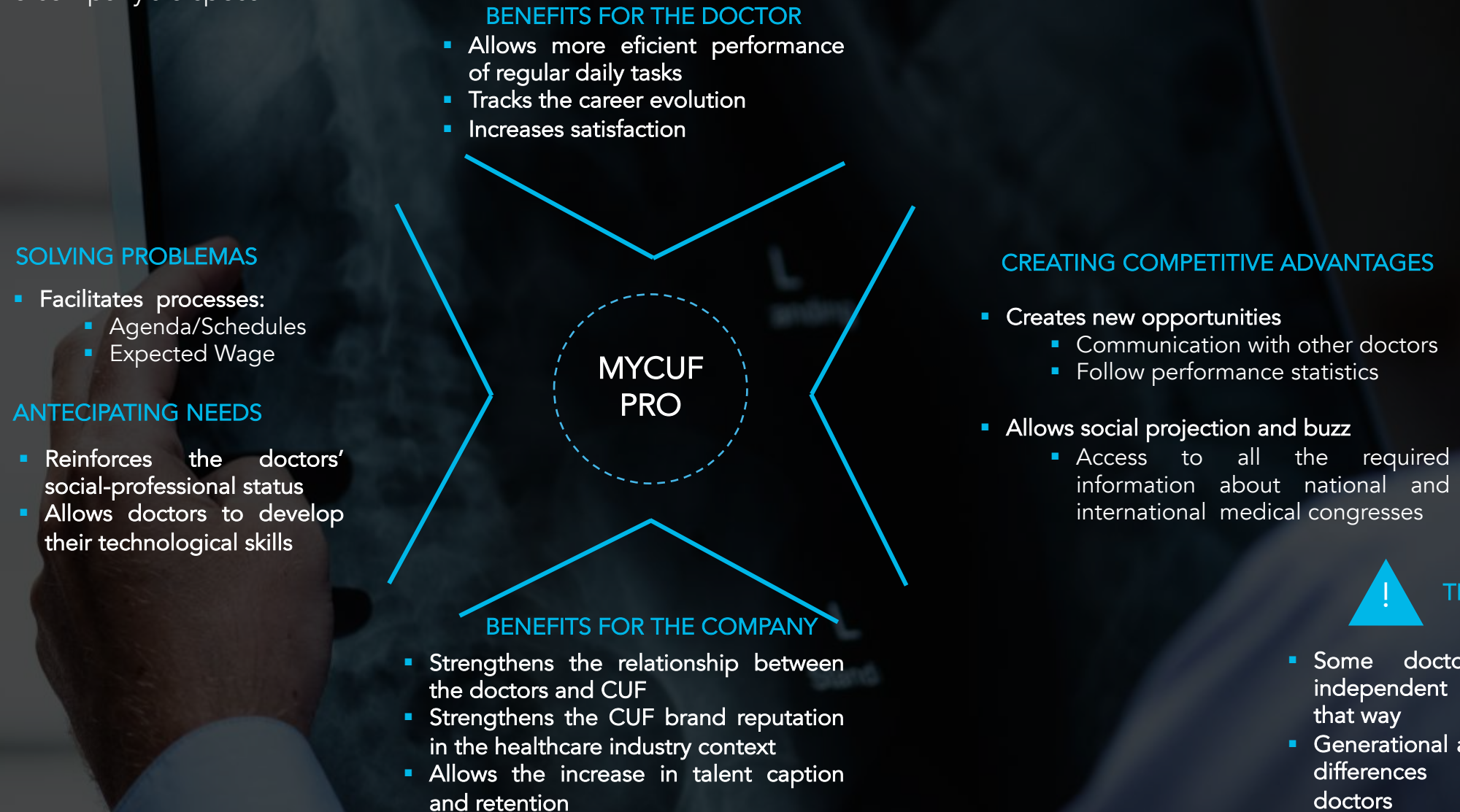
1. MEASURING IMPACT
2. CHALLENGES
3. IMPLEMENTATION PLAN



1.3. MYCUF PRO

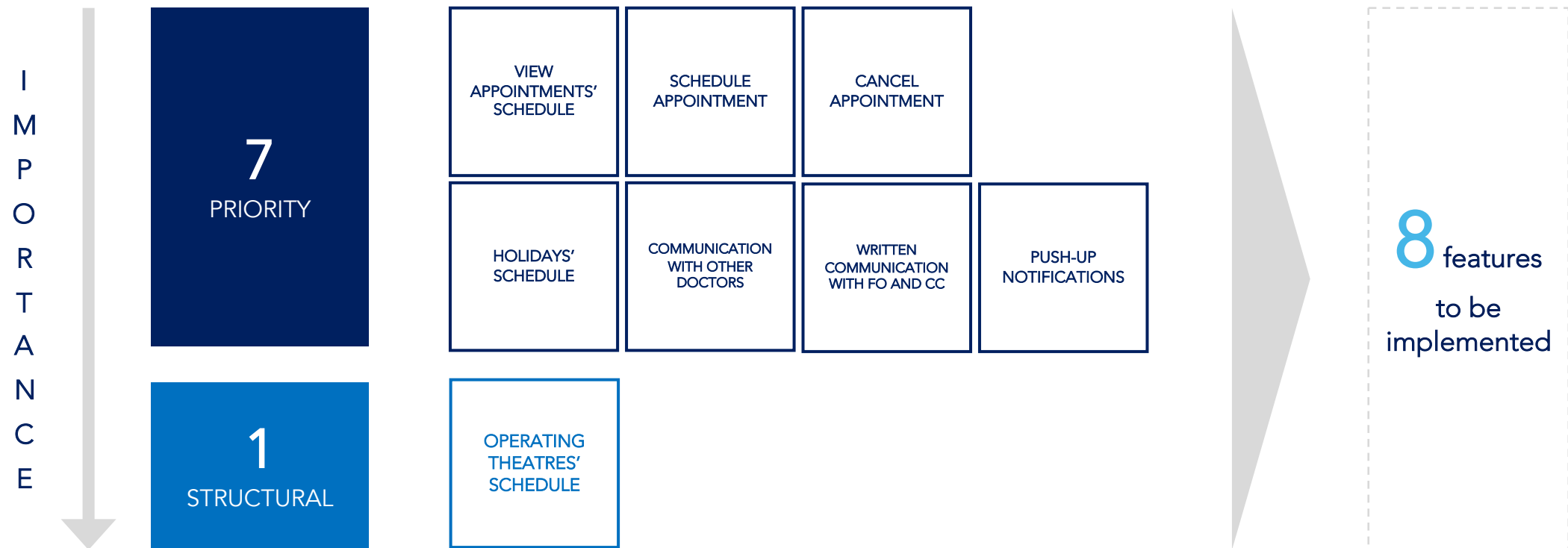
A NEW APP FOR JMS'S DOCTORS

A few core ideas for MyCuf PRO will be recommended by the team to respond to the client's wish to create an app designed for doctors that would raise JMS' administrative efficiency and doctors' satisfaction. The app is also expected to act as a talent attraction and retention tool at the company's disposal.



1.3. MYCUF PRO | features | recommendations (2/13)

By creating an app with 8 core features, doctors will be provided with a user-friendly and very efficient tool that will contribute to their satisfaction. Most of the features suggested are related to doctors' agenda, which was one of the major issues both doctors and the Production Department were concerned about and shared with the team. The internal communication will also be improved.



These features were identified, evaluated and classified into different categories following the same methodology as MyCuf followed that will be presented from here onwards.

1.3. MYCUF PRO | features | sources (3/13)

The team was asked to give some advice on what features to integrate in this new app for doctors. The recommendations presented have been shaped according to three main sources of information: the production department, in-depth interviews and a benchmarking.

Production Department

JMS' s Direction of Production Department (PD) has been facing inefficiency problems regarding some specific issues concerning doctors. Therefore, when the team contacted the PD regarding the development of MyCuf PRO, multiple suggestions and requests were immediately provided. These involved mainly 4 topics:

- Appointments' Schedule
- Operating Theatres' Schedule
- Holidays' Scheduling
- Expected Payment/Fees



In-depth Interviews

Face-to-face in-depth interviews were conducted with 7 doctors, 1 person from the Production Department and another from the Information Systems Direction, under the form of **qualitative interviews**.

Not only they helped with the structure for a future quantitative questionnaire to be sent to all CUF doctors (see Appendix 9) to evaluate the impact of the features proposed, **doctors also came up with additional features to be considered for implementation**.



Benchmarking

Exhaustive **search and analysis** of mobile apps for doctors serving hospitals in Portugal and around the world.

Collection of best practices and exhaustive analysis of possible features to include in the app.

18 features were found given the sample of 37 apps that were considered for the analysis

35 features to consider for the app

1.3. MYCUF PRO | features | sources | pd & in-depth interviews (4/13)

The 35 features to consider for the app were divided into 7 categories according to the main areas of intervention in which they can have an impact for the doctors. 11 features were discussed with the Production Department and/or with the doctors.

DOCTOR'S PROFILE

- **Expected Wage:** Possibility of having access to detailed fees to be received
- **Statistics of Activity:** Possibility of checking the number of appointments performed or canceled and the evolution at CUF (working years and other relevant data)

APPOINTMENT

- **Schedule Appointment:** Possibility of having the doctor schedule an appointment for a specific client
- **Cancel Appointment:** Possibility of canceling one or more appointments via app for a specific day. (See Appendix 10)

CLIENT

- **View Clients' Health Record:** Access to the client's clinical process without authorization to edit it
- **Change Clients' Health Record :** Possibility of seeing and editing the client's clinical process

COMMUNICATION

- **Written Communication with FO/CC:** bi-directional communication with the Front Office and the Contact Center and possibility to check the tasks created by the 2 channels
- **Communication with other Doctors:** Communication with other doctors via text message for consulting purposes (second opinion or other area of expertise)
- **E-mail:** Possibility to check the email via app

INFORMATION

- **Academia CUF:** Access to content provided by the Academia CUF
- **International Congresses:** Information and dates of international congresses



1.3. MYCUF PRO | features | sources | benchmarking (5/13)

The 35 features to consider for the app were divided into 7 categories according to the main areas of intervention in which they can have an impact for the doctors. 18 features were found through the benchmarking analysis and other 6 had already been found in the previous benchmarking for MyCuf.

DOCTOR'S PROFILE

- **Personal Data:** Doctor's information and possibility to change it
- **Reading History:** Possibility of checking past readings on the app

APPOINTMENT

- **Prognosis & Diagnosis:** Possibility of issuing prognoses and diagnosis via app
- **View Appointments' Schedule:** Possibility of consulting the schedule of the appointments from outside the healthcare unit. (See Appendix 10)
- **Holidays' Schedule:** Possibility of scheduling the holidays via app
- **Operating Theatres' Schedule:** Possibility of checking the schedule of the operational room from outside the healthcare unit
- **Text-Based Consultations:** Possibility of communicating with the clients
- **Video Consultations:** Appointment via video conversation
- **Issue Prescriptions:** Possibility of issuing prescriptions for the clients via app
- **Renew Prescriptions:** Possibility of renewing prescriptions for the clients via app

CLIENT

- **Clients' Treatment Plan:** Access to the treatment plan recommended to each client
- **Appointment Notes:** Access to the notes that are taken during an appointment



1.3. MYCUF PRO | features | sources | benchmarking (6/13)

The 35 features to consider for the app were divided into 7 categories according to the main areas of intervention in which they can have an impact for the doctors. 18 features were found through the benchmarking analysis and other 6 had already been found in the previous benchmarking for MyCuf.

COMMUNICATION

- **Contacts:** List of other doctors' contacts

INFORMATION

- **Articles:** Access to health articles, scientific studies, etc.
- **News:** Access to the latest health news
- **Medical Info:** Access to information about medical teams, services and hospital units
- **Health Summaries:** Images, audios and videos explaining clinical pathologies

LOCALIZATION

- **GPS:** Coordinates and directions to the different units
- **Indoor Navigation:** Virtual tour inside the hospital's facilities
- **Points of Interest:** Description of nearby points of interest (restaurants, gardens, libraries, pharmacies, etc.)

OTHERS

- **Push-up Notifications:** Alerts for new appointments, cleared queries, emails, etc.
- **Calculator:** In-app medical calculator with medical functions
- **Procedure Simulation:** Platform to simulate clinical acts
- **Quizzes:** Quiz questions to test doctor's knowledge on specific topics of his/her specialty

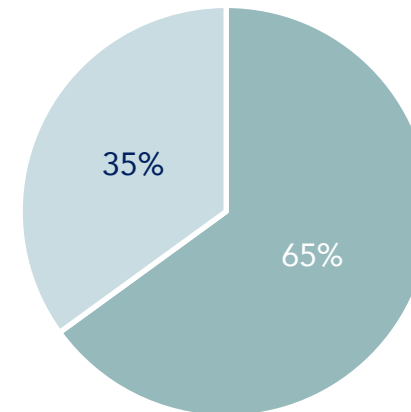


1.3. MYCUF PRO | features | scorecard (7/13)

In order to make a proper judgment of all the possible features to include in the app, **2 criteria** were chosen to evaluate the features: the expected impact and the easiness of implementation.

1. The **expected impact** of the feature was taken into consideration and 2 sub-criteria were chosen: **the administrative efficiency with a weight of 65%** and **the doctor's satisfaction with the remaining weight of 35%**. All the 35 features were classified.

- A doctor is more satisfied with the app when a feature allows him/her to perform tasks that previously could only be performed through other channels.
- Features that have a direct effect on a big number of doctors and that also have a lot of potential in terms of satisfaction towards the app were classified with a higher score.
- It is important to have in mind that a doctor that is more satisfied with the app will most likely use it more often in times of need, ultimately reducing a more significant workload in the front office or in the contact center.



- Administrative efficiency consists in the possibility of reducing the workload with administrative tasks of the front office or the contact center increasing the efficiency of all the operations.
- It also conveys the chance to reduce the cancellations of appointments if doctors can more easily communicate when they will be unavailable.

2. The **easiness of implementation** was considered to evaluate the features. All 35 features were evaluated by Dr. Miguel Ferreira, from the Information Systems Direction (ISD) of the company.

- Estimated technological complexity to develop a specific feature and to integrate it in the app.
- It was taken into consideration that integrating content in the app that had already been developed in the CUF internal information systems was easy to implement.



1.3. MYCUF PRO | features | scorecard (8/13)

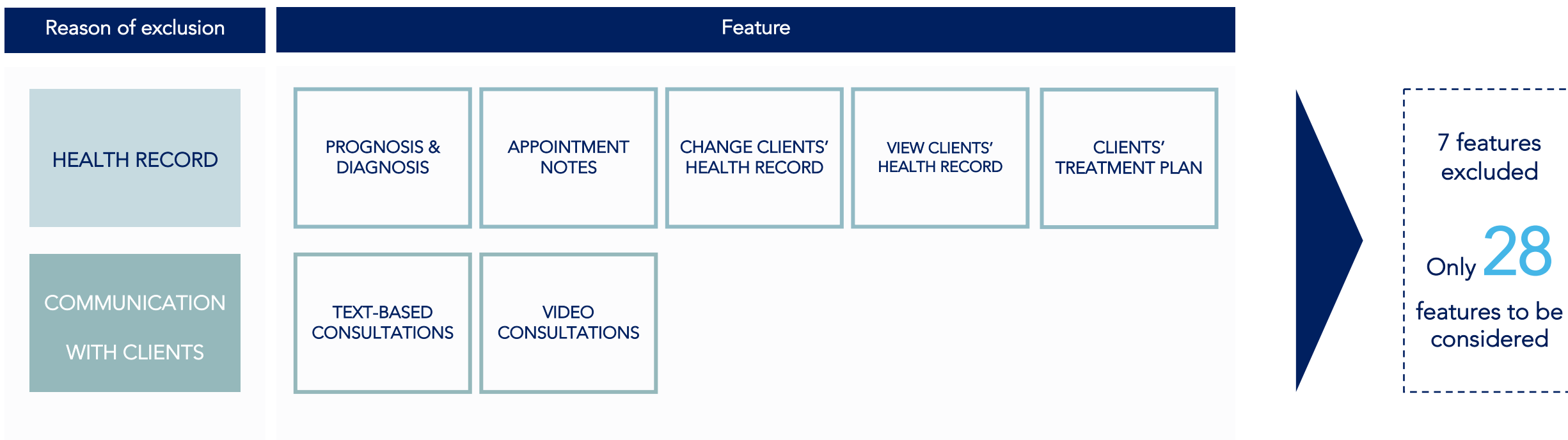
Most of the relevant features in terms of expected impact were suggested either by CUF doctors or by the JMS's Direction of Production Department, giving evidence of the existing dual-side need for MyCuf PRO from both the doctors and the company

	Admin. Efficiency	Doctor's Satisfaction	Expected Impact	Easiness Implem.
	65%	35%	100%	100%
Personal Data	1	5	2,4	4,0
Expected Wage	2	5	3,1	4,0
Reading History	1	4	2,1	4,0
Statistics of Activity	3	4	3,4	3,0
Prognosis & Diagnosis	1	3	1,7	2,0
View Appointments' Schedule	3	5	3,7	3,0
Schedule Appointment	4	4	4,0	3,0
Holidays Schedule	4	5	4,4	4,0
Cancel Appointment	5	5	5,0	3,0
O.T. Schedule	3	4	3,4	1,0
Text-based Consultations	1	4	2,1	3,0
Video Consultations	1	3	1,7	3,0
Issue Prescriptions	1	4	2,1	1,0
Renew Prescriptions	1	4	2,1	1,0
Clients' Treatment Plan	2	3	2,4	2,0
View Clients' Health Record	2	4	2,7	1,0
Change Clients' Health Record	3	3	3,0	1,0
Appointment Notes	2	4	2,7	3,0
Written Communication w/ FO/CC	4	4	4,0	4,0
Communication w/ Other Doctors	4	4	4,0	4,0
E-mail	3	4	3,4	4,0
Contacts	1	4	2,1	4,0
Academia CUF	1	3	1,7	4,0
International Congresses	1	5	2,4	4,0
Articles	1	3	1,7	4,0
News	1	4	2,1	4,0
Medical Info	3	4	3,4	4,0
Health Summaries	1	3	1,7	4,0
GPS	1	1	1,0	5,0
Indoor Navigation	1	1	1,0	2,0
Points of Interest	1	3	1,7	4,0
Push-up Notifications	4	4	4,0	4,0
Calculator	1	3	1,7	5,0
Procedures Simulation	1	1	1,0	1,0
Quizzes	1	2	1,4	4,0

- From the 35 features considered for the expected impact, 18 were found through the benchmarking performed, 6 had already been seen in the benchmarking for MyCuf clients and the team realized they could be useful for doctors' version as well, and the final 11 features were suggested either by doctors or the Production Department.
- Concerning the Doctor's Satisfaction, due to GRPD (General Data Protection Regulation) issues, it was not possible to apply the questionnaire developed by the team and the evaluation was merely based on the personal in-depth interviews with doctors. The same questionnaire will be with JMS and sent to CUF doctors when possible. (See Appendix 9)

1.3. MYCUF PRO | features | scorecard (9/13)

5 features were excluded for a matter of medical council decisions. The possibility of having the doctors checking and making changes to clients' health records was vetted by the council. 2 other features were not considered as JMS does not feel comfortable yet with launching an institutional platform where these two features are implemented, as they are associated with possible profound changes both in the organization and doctors' mindsets as well as in the tasks' performance.



"Some of the top barriers organizations cite when deciding on a BYOD [Bring Your Own Device] strategy include government regulations and difficulties in supporting security, encryption, and remote wiping (Intel, 2012). Heavily regulated industries such as the medical field and the banking industry have to be even more cautious if implementing a BYOD strategy due to government regulations" ¹

¹Communications of the Association for Information Systems, 2014, *Current Status, Issues, and Future of Bring Your Own Device (BYOD)*

1.3. MYCUF PRO | features | clusters (10/13)

After evaluating individually the 35 features identified according to the expected impact and the easiness of implementation respectively, 4 levels of priority – clusters – were defined so as to compare the scores of each criterion and make a decision on what features to implement in the short term.



Defining 4 clusters for both criteria

The cluster method consisted in creating 4 groups of observations using a statistical approach that tried to minimize the sum of the distances of the observations in each level in relation to that cluster average

Firstly, the features were ranked (from the highest to the lowest score) and, keeping that order, “randomly” divided into 4 groups.

Secondly, the average of each group was calculated. Then, the square of the difference of each observation in the group to the average of that group was obtained. Finally, all the squared differences were summed.

As the goal was to minimize this sum, this cluster method involved some trial and error in order to reach the best results.

The creation of clusters for each criterion was conducted separately

Cluster	Feature	Expected Impact
4	Cancel Appointment	5,0
	Holidays Schedule	4,4
	Schedule Appointment	4,0
	Written Communication w/ FO/CC	4,0
	Communication w/ Other Doctors	4,0
	Push-up Notifications	4,0
	View Appointment's Schedule	3,7
3	O.T. Schedule	3,7
	E-mail	3,4
	Medical Information	3,4
	Statistics of Activity	3,4
	Expected Wage	3,1
	Change Clients' Health Record	3,0
	View Clients' Health Record	2,7
2	Appointment Notes	2,7
	Personal Data	2,4
	International Congresses	2,4
	Clients' Treatment Plan	2,4
	Reading History	2,1
	Text-based Consultations	2,1
	Issue Prescriptions	2,1
	Renew Prescriptions	2,1
	Contacts	2,1
	News	2,1
	Prognosis & Diagnosis	1,7
	Video Consultations	1,7
	Articles	1,7
	Health Summaries	1,7
	Points of Interest	1,7
	Calculator	1,7
	1	Academia CUF
Quizzes		1,4
GPS		1,0
Indoor Navigation		1,0
Procedures Simulation		1,0

Cluster	Feature	Easiness Implement	
4	GPS	5	
	Calculator	5	
	Personal Data	4	
	Expected Wage	4	
	Reading History	4	
	Holidays Schedule	4	
	Written Communication w/ FO/CC	4	
	Communication w/ Other Doctors	4	
	E-mail	4	
	Contacts	4	
	Articles	4	
	News	4	
	Medical Information	4	
	Health Summaries	4	
	Points of Interest	4	
	3	Push-up Notifications	4
		Quizzes	4
Academia CUF		4	
International Congresses		4	
View Appointment's Schedule		3	
Schedule Appointment		3	
Cancel Appointment		3	
2	Text-based Consultations	3	
	Video Consultations	3	
	Notes	3	
1	Statistics of Activity	3	
	Prognosis & Diagnosis	2	
	Clients' Treatment Plan	2	
	Indoor Navigation	2	
	O.T. Schedule	1	
	Issue Prescriptions	1	
	Renew Prescriptions	1	
1	View Clients' Health Record	1	
	Change Clients' Health Record	1	
	Procedures Simulation	1	

1.3. MYCUF PRO | features | the matrix (11/13)

4 categories were defined and only then the features were allocated to their place, according to the scores previously obtained. 8 features were selected to implement in the app: 7 belonging to the Priority area and 1 to the Structural.



	2	2	4
4	GPS	Calculator	Contacts
4	Quizzes	Points of Interest	Health Summaries
3		Academia CUF	International Congresses
2	Indoor Navigation		
1	Procedures Simulation	Renew Prescriptions	Issue Prescriptions
	1	2	4

	2	2	4
4	GPS	Calculator	Contacts
4	Quizzes	Points of Interest	Health Summaries
3		Academia CUF	International Congresses
2	Indoor Navigation		
1	Procedures Simulation	Renew Prescriptions	Issue Prescriptions
	1	2	4

4 big categories were created based on what was considered fair for the analysis.

PRIORITY – features with large expected impact that are relatively easy to implement.

STRUCTURAL – although these features are not easy to implement, it is expected they will bring lots of impact to the core of the app.

EASY KILLS – features that are not so impactful but that are very easy to implement.

LESS RELEVANT – features that are not very easy to implement and its expected impact is low.

Considering the scores obtained for each criterion and the levels of priority established with the clusters' analysis, the matrix was built by crossing the 4 clusters of each criterion for all the 28 features.

Horizontally, the features are displayed considering its expected impact, whereas vertically they are evaluated according to its easiness of implementation.

The combination of expected impact and easiness of implementation defines each feature's position in the matrix.

As the Client wants a user-friendly app with the most efficient features, only those features located in the 2 selected areas (Priority or Structural) were chosen to be implemented once the app is developed, as they met the defined requirements.

8 features were the result of the analysis.

1.3. MYCUF PRO | features | the matrix (12/13)

Only the features belonging to the cluster 4 in terms of expected impact will be implemented. The features that were excluded would not be implemented, as they are not relevant in terms of expected impact.

		1		2				3			4				
Easiness of Implementation	4	GPS		Calculator	Contacts	Reading History	Personal Data	Expected Wage	Medical Info	E-mail		Communication w/ other doctors	Holidays Schedule		Levels of priority: 4 – Maximum 3 – High 2 – Medium; 1 – Low
			Quizzes	Points of Interest	Health Summaries	Articles	News				Push-up Notifications		Written Communication w/ FO/CC		
				Academia CUF			International Congresses								
	3			Video Consultations		Text-based Consultations	Notes	Statistics of Activity			View Appointments' Schedule	Schedule Appointment	Cancel Appointment		
	2	Indoor Navigation			Prognosis & Diagnosis	Clients' Treatment Plan									
	1	Procedures Simulation		Renew Prescriptions	Issue Prescriptions	View Full Clients' Health Record	Change Clients' Health Record				O.T. Schedule				
		1		2				3			4			Expected Impact	

 Suggested features
 Excluded features

1.3. MYCUF PRO | features | the matrix (13/13)

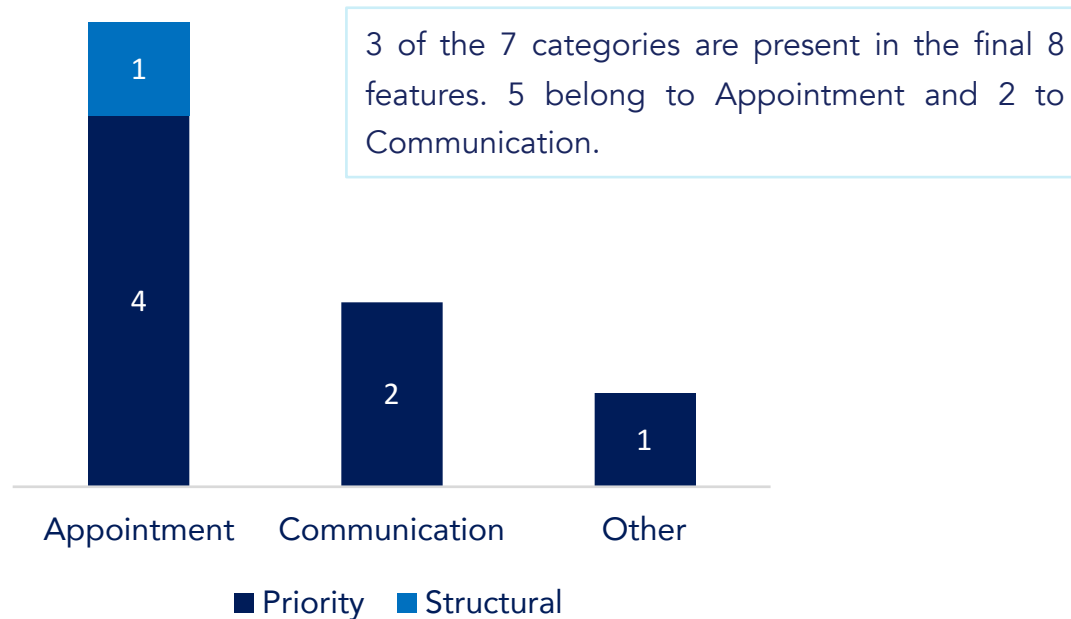
The 8 final features can be analyzed according to its source, category and importance for the app. 5 are related to the Appointment category, 2 with Communication and 1 with Other.

Not all 8 final features were found in the same source. A few were exclusive from the benchmarking analysis, others were discussed with doctors an the Production Department:

- 4 benchmarking
- 4 suggested by doctors and Production Department

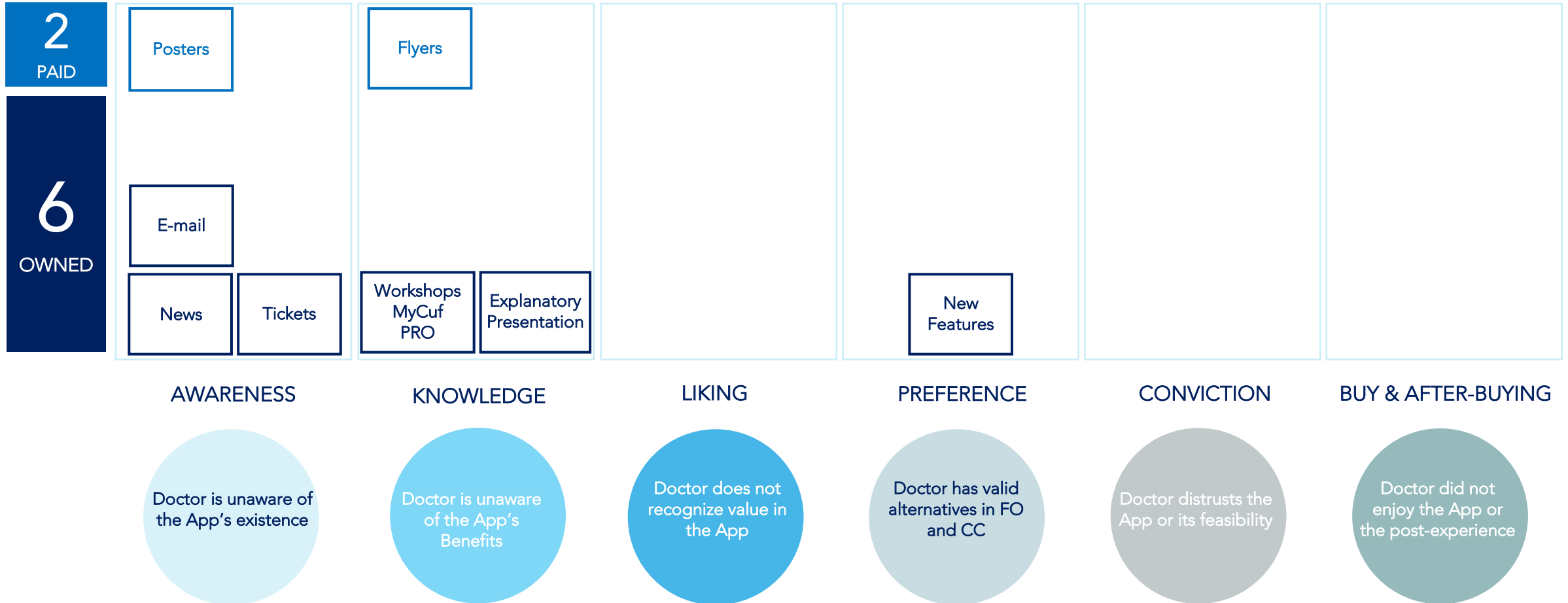
Although some features were considered as easy kills, the client clearly stated that the initial priority should be efficiency and doctors' satisfaction, for which reason they will not be implemented in the short term. Nevertheless, in case JMS wants to add new features to the doctors' app as future developments, the 13 features that were considered easy kills are:

- GPS
- Calculator
- Personal Data
- Expected Wages
- Reading History
- E-mail
- Contacts
- Articles
- News
- Medical Info
- Health Summaries
- Points of Interest
- Quizzes
- Academia CUF
- International Congresses



1.3. MYCUF PRO | A&U PLAN | main communication tools (1/10)

MyCuf PRO aims to be a personalized efficient tool for doctors. The goal of the communication plan is to provide doctors a clear message about the new app and to reach each doctor at least 2 times. MyCuf PRO aims to be present in 80% of CUF doctors' mobile phones, which is equivalent to 2880.



1.3. MYCUF PRO | A&U PLAN | whom to communicate (2/10)

The group of CUF employees selected to communicate the app were the doctors. These are the ones with most perceived value, the most difficult to attract and retain and very costly for the organization.

The client stated that MyCuf PRO was only designed for JMS' doctors, leaving behind all other medical technicians and staff of the units. The team asked to evaluate if the doctors would be indeed the right group to target for a BYOD plan, given that throughout the organization there are other distinctive job function groups that could also benefit from an app.

Our group corroborated the decision of the company by coming to 3 main conclusions: doctors' high perceived value, the fact that they are the most difficult group to attract and retain and, finally, the cost of their services per hour.

1. PERCEIVED VALUE

Due to the sensitive nature of the healthcare industry, one of the reasons why clients choose CUF is the quality of its services (which is transversal to all job function group) and for the know-how of CUF's doctors. The latter corresponds to the perceived value that clients attribute to specific doctors, which explains their fundamental role for the hospital's status. In fact, and this is something very particular in the healthcare industry, there are a few doctors' names that are so well-known that having them work for a hospital increases its overall value.

2. ATTRACTION & RETENTION PURPOSES

Besides, doctors are also the group that go through more years of education and specialization, which means they are the most difficult group to attract and retain. Comparing them with the other professionals, doctors are the group with less supply for its demand in the healthcare industry.

3. COSTLY SERVICES PERFORMERS

Finally, doctors' cost per hour is measured by their total earnings divided by the number of hours they worked. Doctors are the most costly group when comparing to the other professionals working for a healthcare provider.

For these 3 reasons, and since the development of MyCuf PRO intends to bring productivity, efficiency and employee satisfaction, the doctors were chosen as the target group and the ones that will benefit from the BYOD strategy.



BRING YOUR OWN DEVICE (BYOD)

A study¹ from a group of professors from different universities found that a program such as **Bring Your Own Device** should be communicated in a easy way with a clear objective, baseline and stakeholders.

CONTEXT

*Current Status, Issues, and Future of Bring Your Own Device (BYOD)*¹ is a study that summarizes a panel discussion that happened in the 2013 Americas Conference on Information Systems about the status, issues, and future direction of the use and adoption of bring your own device (BYOD).

MAIN FINDINGS

"BYOD action plans should **clearly establish the objective, baseline, and stakeholders**. Make policy content **easy to communicate**. Create whitelist/blacklist of end user applications."

There are some job functions that benefit from a BYOD strategy and others that do not. Hence, a company must not only decide on the BYOD strategy but also decide **which departments or employees** will participate in the program. Managers are called to "determine **the processes** that would take advantage of a BYOD strategy and **what applications would be needed to execute the strategy**."

¹Communications of the Association for Information Systems, 2014, *Current Status, Issues, and Future of Bring Your Own Device (BYOD)*

1.3. MYCUF PRO | A&U PLAN | qualitative research (3/10)

Personal in depth interviews with HCIS' Production Department and 7 doctors were conducted in order to access which risks may occur in the adoption plan of MyCuf PRO.

Due to the confidentiality of each CUF client, it was not possible to draw a process flow of a CUF doctor during an appointment. The alternative approach was to ask doctors what their most relevant daily administrative tasks are. With the aim of finding the main possible issues with the adoption plan, it was assumed that the app had following features: Cancel Appointment, Communication with other Doctors, Holidays' Schedule, Push-up Notifications, Schedule Appointment, View Appointments' Schedule, Written Communication with FO and CC, and Operating Theatres' Schedule.



MAIN FINDINGS

- 0. Potential Features*
- 1. Customer Readiness to Buy Process
- 2. Barriers and Solutions to Adoption and Usage

Qualitative Research Structure | RESEARCH & METHODOLOGY

10 In-depth Interviews

- 1. Target Selection
- 2. Direct Method – individual interview to differentiated relevant sample

Sample details

GENDER

Female: 29%
Male: 71%

(See Appendix 11)



Isabel Domingues



David Paiva



Carlos Vaz



Ricardo Girão



Piedade Sande Lemos



Abel Abejas



Bruno Santiago

*already analysed

1.3. MYCUF PRO | A&U PLAN | qualitative research (4/10)

The insights extracted were diagnosed in a sequential process and grouped as awareness, knowledge, liking, knowledge, preference, conviction and buy & after-buying barriers, as mentioned in the customer readiness-to-buy process, firstly developed by Philip Kotler¹. These barriers will be tackled by our recommendations.

BARRIERS TO ADOPTION & UTILIZATION

<ul style="list-style-type: none"> Doctor does not find the app in the Appstore Never heard of it No one showed him the app 	<ul style="list-style-type: none"> Doctor will only use it if it is user-friendly Doctor does not know the benefits of the app It seems to have few features Peers do not use it 	<ul style="list-style-type: none"> Doctor does not want to work from home and have notifications from work Doctor does not like technology It does not have the feature that the doctor would like to have He does not see utility in the app It is difficult to use it 	<ul style="list-style-type: none"> Doctor works in others healthcare providers and he prefers another app Doctor has a secretary that does it instead of him Doctor prefers to use a computer Doctor thinks that there are better alternatives Doctor has high changing costs Doctor does not like to use his personal mobile phone for work subjects Doctor wants monetary incentive to use it 	<ul style="list-style-type: none"> Doctor does not think the app can do what it says it can do Doctor does not believe that it will work 	<ul style="list-style-type: none"> Doctor wants more features It is not user-friendly It is always down It does not work well Doctor used it but did not like it It not easy to log in
--	--	--	--	--	--

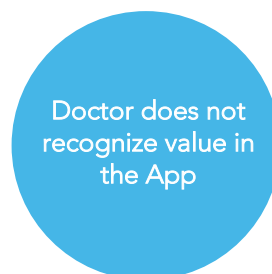
AWARENESS



KNOWLEDGE



LIKING



PREFERENCE



CONVICTION



BUY & AFTER-BUYING



¹Philip Kotler, 1997, *Integrated Marketing Communication Strategy: Developing the Marketing Mix*

1.3. MYCUF PRO | A&U PLAN | what, where & how to communicate (5/10)

Doctors revealed that, in order to consider using the app, its message should be very clear and precise so they can properly understand the app's benefits over its current alternative channels. Owned channels such as e-mail can reach out to all doctors within CUF. Paid media will play a secondary role in order to guarantee that all doctors are exposed to the app at least 2 times.

- It is important that **doctors** understand **they are the reason why MyCuf PRO was created**. The **message must be both emotional and rational**: emotional as they will be more willing to use the app knowing it was explicitly made for them and rational as they will not use the app unless they understand the all its advantages.

- As the doctors have big time constraints, the message should be **short and concise**, communicating the value and the benefits of the app to the doctors.

- During the personal in-depth interviews with doctors, they explained the methods they currently use for some of the features the app intends to provide in the future. Some doctors mentioned the possible existence of high changing costs for them as they are used to the current solutions and do not want to change. Therefore the message should enhance MyCuf PRO as an **efficient tool of performing administrative tasks rather than the traditional alternatives** doctors have such as personal secretaries, FO, etc.

- To understand which type of media will be more effective, the team investigated when and where the doctors have the pains that the app aims to target. It was concluded that doctors' needs/pains do not urge in specific places. They might occur inside or outside the healthcare unit. Accordingly, the message should be **communicated both in and outside the units**.

WHAT

WHERE

Taking this information in consideration, it was concluded that **doctors need a clear communication that highlights the benefits of the app and the reasons why they should use it** instead of the alternatives they already have at their disposal.

In one phrase, MyCuf PRO should be positioned in doctors' minds as an easy mean of doing more.

"MyCuf PRO: an app designed by doctors for doctors"

– Emotional Approach

- As CUF doctors represent a closed community that works for the same organization, the channels of communication should be concentrated around **owned and earned media**.

- Regarding the owned media, CUF has access to all doctors' emails. These will be used to communicate the doctors a presentation of the app, a description of its features, some tutorial lessons and link to the download of the app. An advantage of using owned media is the possibility of building longer term relationships which may generate earned media.

- Once a few doctors start using the app, it is expected that they will talk about it with other doctors as long as they are satisfied. This **exchange of feedback constitutes the earned media for the app** so it is crucial to provide doctors a great app with a very clear message that responds to their needs.

- Paid media will also be needed to promote the app. Workshops and CUF events should also be leveraged to reach out to doctors where explanatory flyers and posters can be at the doctors' hands.

HOW

1.3. MYCUF PRO | A&U PLAN | recommendations (6/10)

As doctors spend most of their time in the healthcare units, these spaces should be leveraged to communicate the new app. The group suggests the use of flyers and posters that include QR Codes. Workshops for doctors can also represent an opportunity to introduce the app to doctors. The digital communication will help to create awareness towards the new app and it will be used to communicate its added value and features.

PHYSICAL PROMOTION

FLYERS & POSTERS

- Advertisement for doctors in the units should only be present in places where they spend some time such as **common rooms, coffee shops and their offices**. Two types of ads can be used: posters with images and flyers with **written information**. The posters will aim for the adoption by increasing doctors' awareness of the app while the flyers will address both adoption and utilization as they will further **explain its benefits and how to easily use it**.
- Both flyers and posters should be present not only in healthcare units but also in workshops and other events organized for CUF doctors.
- The company should make justice to the purpose of the app and provide a **very easy download process**. For that, the group recommends including QR codes on flyers and posters, directly connecting the doctors to the app's download platform

WORKSHOPS

- As mentioned, there is space to advertise the new app for doctors during workshops or other events for doctors. It is possible to create a **short presentation for the new app's concept and benefits**, showing doctors how the new features will help them increase their efficiency. Awareness will increase and the utilization rate is also expected to rise.

DIGITAL PROMOTION

EMAIL

- The most efficient way to communicate inside a company is downwards and through the email platform. Downwards communication involves having the leader of an organization communicating information to its employees. This should be taken into consideration when the new app is presented to the doctors.
- In fact, the **email is the fastest, most efficient and the cheapest way to communicate inside an organization**. As a channel of written communication, it is accurate and very clear. In the first email, the **message should be clear and focused on the added value** the app will bring to doctors.

EXPLANATORY PRESENTATION

- For doctors that do not know the app and want to know more proactively, it is important to have a presentation available on their personal pages or in a platform all doctors have access to such as the Academia CUF, explaining them what and how the app can do.

NEWS

- Internal news are a way to be present in the doctors' mind. If the app is present in internal news, the awareness and its appetite will increase, leading to an increase in the adoption and utilization rates. It is important to add testimonials from peers that are a reference for the community.

FEATURES

- Apart from the already suggested features, a few extra will be suggested for implementation.

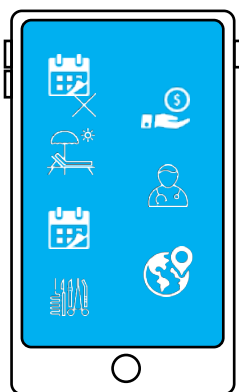
1.3. MYCUF PRO | A&U PLAN | recommendations | features (7/10)

Two types of features will be added to MyCuf PRO: those that obtained a score of 5 concerning doctors' satisfaction on a scale of 1 to 5 and those that provide additional information. This is expected to increase doctors' adoption and utilization rates as it will provide them what they mentioned to be the most desirable features.

DIGITAL PROMOTION

FEATURES

7 features scored the highest in the doctors' satisfaction evaluation were:



- Cancel Appointment
- Holidays Schedule
- View Appointments Schedule
- Operating Theatres Schedule
- Expected Wage
- Personal Data
- International Congresses

1. From these 7, the first 4 features were already suggested for implementation due to their high expected impact and because they will be responsible for increasing doctors' retention, loyalty and commitment to the app.



2. Expected Wage, Personal Data and International Congresses will also be included in order to increase doctors' adoption and utilization rates.



3. Statistics of Activity will be added to the final list of recommendations so as to provide doctors the information they currently do not have access to. Expected Wage also serves this purpose.



- "Expected Wage" has a high expected level of satisfaction among the doctors and provides new information on their future wage and medical fees.
- "Statistics of Activity" will provide extra information about the number of appointments performed, canceled, as well as some relevant numbers of the doctor's performance over the years working at CUF.
- Providing this type of information acts as an attraction tool to the app.

1.3. MYCUF PRO | A&U PLAN | recommendations (8/10)

Minimizing the number of cancelations of appointments by the doctors is one of the main goals of the Client. Just by decreasing the canceled appointments by 30%, keeping everything else constant, JMS is able to increase its revenues by 4 465 408€.

The client also pointed out that the canceled appointments per doctor are a major concern. The team analyzed the situation and came up with the following data:

TOTAL NR OF APPOINTMENTS	1 840 000
NUMBER OF DOCTORS	1 913
APPOINTMENTS PER DOCTOR	961.84
AVERAGE PRICE OF APPOINTMENT	32 €
DOCTORS' REVENUE PER APPOINTMENT (%)	0.7
PROFIT FOR JMS PER APPOINTMENT (%)	0.27
COSTS PER APPOINTMENT (%)	0.03
APPOINTMENTS CANCELED BUT RESCHEDULED	125 877
APPOINTMENTS CANCELED AND NOT RESCHEDULED	13 667
LOSS OF THE APPOINTMENTS CANCELED AND NOT RESCHEDULED	118 082.9
COST OF OPPORTUNITY OF THOSE CANCELLED BUT RESCHEDULE	1 087 577.3

- The client was confident in assuming that the doctors' utilization ratio and the room's utilization ration is approximately 1, which means that 1 canceled appointment represents a loss of $32€ \times 27\% = 8.64€$ for JMS.

- Based on those assumptions, in 2017 JMS had an opportunity cost of 1 205 660.16 €.

With the aim of decreasing the number of canceled appointments, the team suggested that all the information concerning International Congresses (dates, speakers, etc.) should be available in the app in order to help doctors anticipate and plan their agenda in case they intend to go.

Furthermore, to overcome the issue of canceled appointments in a more effective way, the team developed **two compensation methods** (see Appendix 12) for the doctors that would act as an incentive:

METHOD 1

- Goals are established according to the number of the doctor's appointments.
- Some doctors will be above the goal right from the start.
- The effort to reach the goal, comparing with previous years, is not compensated.
- CUF may incur losses if doctors who are already above the goal get the bonus but the ones that were supposed to change their behavior don't do it.

METHOD 2

- Goals are established by taking in consideration the past of each doctor, that is, the number of previous cancelations.
- All doctors will have a motivation to achieve their goal of canceling less appointments.
- Doctors who canceled more appointments in the past will have a goal that requires extra effort but they will also be extra compensated for it.
- CUF will profit from the compensation method as all doctor will only earn the bonus if they cancels less appointments than before.

POSSIBLE BENEFITS

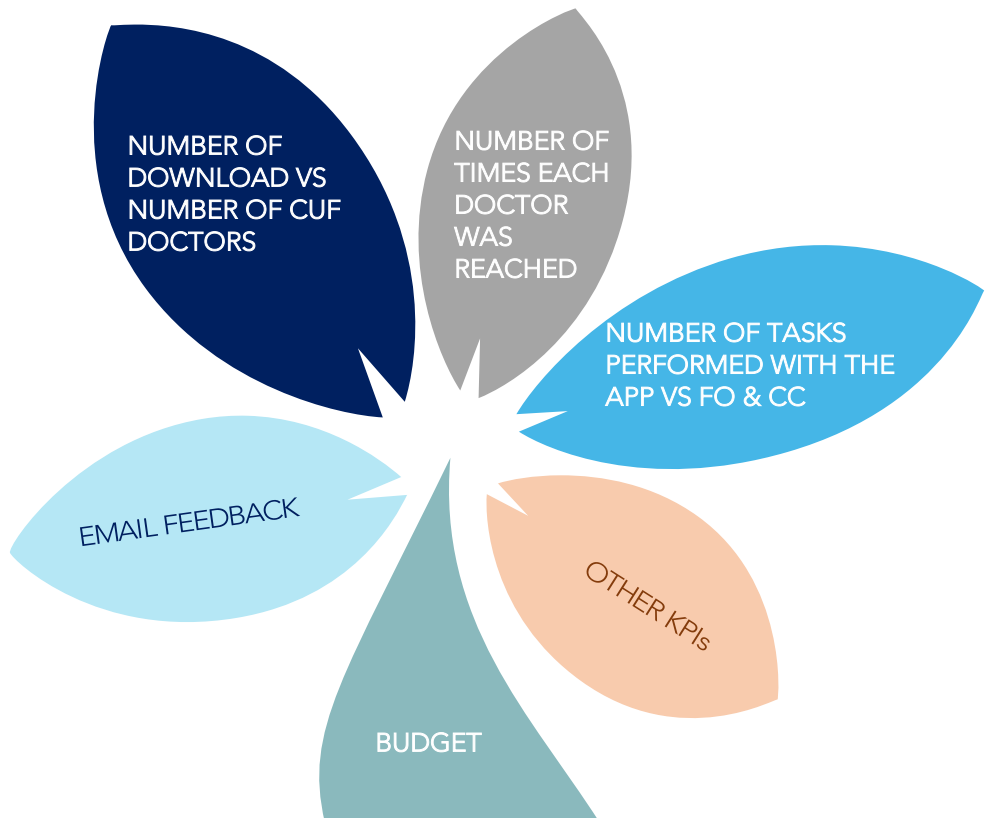
If JMS reduces the number of canceled appointments by 30%, the revenues would be expected to increase by 4.465.408€.

According to the compensation methods, JMS' profits would increase by 1.205.660,16€.


The compensation method attributes 80% of the "new" revenue to doctors' bonus, 3% to other costs per appointment and 17% to JMS.


1.3. MYCUF PRO | A&U PLAN | budget & KPIs (9/10)


The KPIs will be determinant to access if doctors are happy with the app. Measuring and analyzing a few indicators can be a very efficient way to look for possible improvements in terms of overall easiness to use and also in terms of features.





As the communication is focused on a combination of owned and earned media, the **budget will be not relevant for the analysis**. The only costs of the communication plan will be the creation and printing of flyers and posters. They will be needed at every hospital and should be distributed according to the number of doctors in each unit. Besides, every workshop and event for doctors should also have plenty of these explanatory flyers.

- 

EMAIL FEEDBACK
The information about the new app MyCuf PRO is expected to reach every CUF doctor as the first communication channel to deliver the message will be the email. As the app will be presented through email, it will also be possible to measure doctors' response to the email with positive or negative feedback.
- 

NUMBER OF DOWNLOAD VS NUMBER OF CUF DOCTORS
In terms of message impact, it will be possible to compare the number of accounts with the number of doctors and, taking in consideration the difference, decide how much to invest in flyers and posters.
- 

NUMBER OF TIMES EACH DOCTOR WAS REACHED
The goal is to reach doctors at least 2 times with information about the new app. This KPI should track this number and analyze what are the segments and healthcare units that are less reachable.
- 

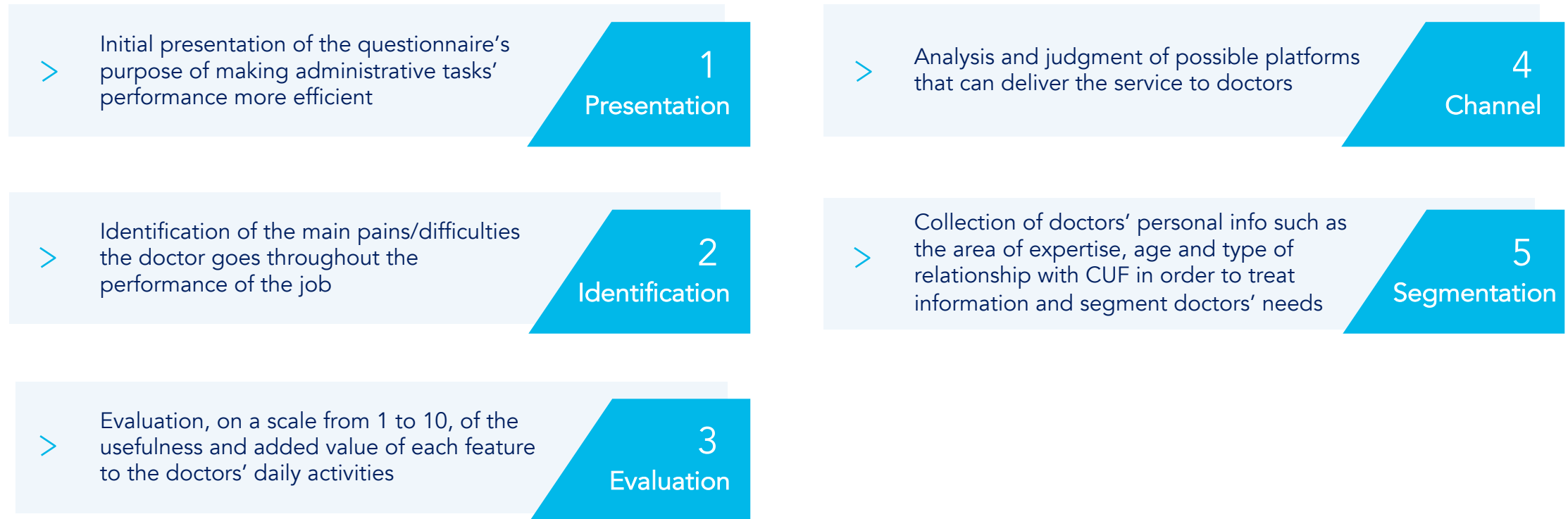
NUMBER OF TASKS PERFORMED WITH THE APP VS. NUMBER OF TASKS PERFORMED WITH THE HELP OF THE FO/CC
It will be possible to compare the number of tasks (appointments scheduled, canceled, etc) through the app with the performance through the other traditional channels such as the FO and CC.
- 

OTHER KPIs

 - Number of doctors that use the app vs. number of doctors that simply downloaded the app
 - Number of clicks within the app
 - Rating on the app (on a scale from 1 to 5)

1.3. MYCUF PRO | next steps (10/10)

Due to General Data Protection Regulation issues, it was not possible to conduct a quantitative questionnaire prepared by the team to study the doctors' preferences more accurately. However, the questionnaire proposal was delivered to the company and it will be sent to the doctors once the obstacles regarding GRPD are overcome.



A G E N D A



JOSÉ DE MELLO SAÚDE

DIAGNOSIS

1. THE HEALTHCARE INDUSTRY
2. THE PORTUGUESE HEALTHCARE SECTOR

ANALYSIS

1. JOSÉ DE MELLO SAÚDE
2. MYCUF
3. MYCUF PRO

RECOMMENDATIONS

1. HOW CAN MYCUF INCREASE JMS' EFFICIENCY?
 - 1.1. MyCuf Client Development
 - 1.2. Adoption & Usage Plan
 - 1.3. MyCuf PRO

FURTHER ANALYSIS

1. MEASURING IMPACT
2. CHALLENGES
3. IMPLEMENTATION PLAN

1. MEASURING IMPACT

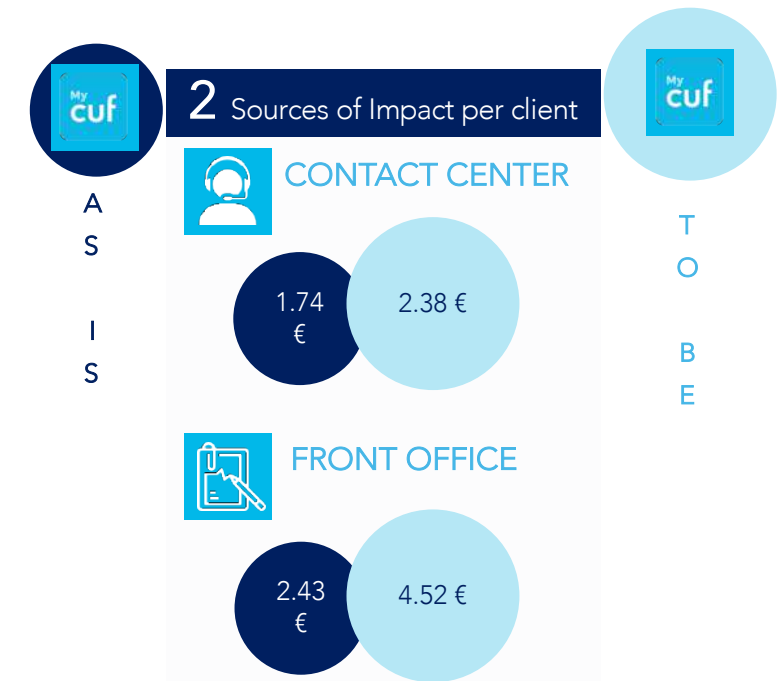


1. MEASURING IMPACT | estimated impact per client and service line (1/4)

The estimated impact per client was calculated for two versions of the app MyCuf. The team believes that our recommendations will bring value to the company as the MyCuf TO BE presented a higher value for estimated impact per client for both service lines than MyCuf AS IS.

METHODOLOGY

- Given the data provided, our group was able to estimate the total annual number of Contact Center inbound calls (see Appendix), as well as its respective topics and average call time values, and the total number of Front Office printed tickets (see Appendix 13), as well as its respective headings and average service times, expected for the year of 2018. After the estimation, we selected the existent processes that could be mitigated by the usage of the app.
- The group compared **two different versions**: the existent MyCuf app (**MyCuf AS IS**) & the MyCuf app developed incorporating the team's proposed recommendations (**MyCuf TO BE**). It was possible to obtain the total estimated impact in time for the 2 service lines of both scenarios. Overall, the two versions considered are expected to be different in 2 ways: in the number of features (measured by the estimated impact per client) and in the number of accumulated clients. These differences explain the why the values for the Contact Center and for the Front Office estimated impacts in each version are not converging.
- In what respects accumulated clients, MyCuf AS IS was assumed to maintain the verified (Jan 18 - June 18) growth rate of 32% until the end of 2018 and a growth rate of 16% throughout 2019, ending the years with 408 792 and 473 930 accumulated clients, respectively. MyCuf TO BE assumed it would reach the projected target of 500 000 active users until the end of the 2018, and 653 226 by the end of 2019.
- In the long run (2022+), both versions will assume a steady growth of 1%. The following information considers optimistic scenarios.



1. MEASURING IMPACT | estimated impact per client and service line (2/4)

The estimated impact per client was calculated for two versions of the app MyCuf. The team believes that our recommendations will bring value to the company as the MyCuf TO BE presented a higher value for estimated impact per client for both service lines than MyCuf AS IS.

	2017	2018	2019	2022+		2017	2018	2019	2022+	
A S I S	310,000	408 792	473 930	534 732	MYCUF NUMBER OF ACCUMULATED CLIENTS (CLOSING NUMBERS)	310 000	500 000	653 226	787 367	T O B E
	NA	359 396	441 361	533 401	AVERAGE NUMBER OF ACCUMULATED CLIENTS per year	NA	405 000	576,613	785 408	
	NA	32%	16%	1%	GROWTH RATE OF ACCUMULATED CLIENTS	NA	61%	31%	1%	
	NA	198 244	243 456	294 226	ESTIMATED MYCUF USERS	NA	223 399	318 062	433 234	
	NA	345 642€	424 470€	512 988€	ESTIMATED CC IMPACT (Appendix 13)	NA	389 501€	756 755€	1 030 781€	
	NA	481 826€	591 712€	715 107€	ESTIMATED FO IMPACT (Appendix 14)	NA	542 965€	1 436 780€	1 957 048€	
	NA	827 468€	1 016 182€	1 228 096€	ESTIMATED TOTAL IMPACT	NA	932 466€	2 193 535€	2 987 828€	



1. MEASURING IMPACT | relevant impact and scenario analysis (3/4)

The total relevant impact value for MyCuf TO BE was positive and corresponded to 26 471 639€. The company should, however, bear in mind that this is an optimistic scenario, for which the investment cost must be considered.

The relevant impact – value added intrinsic to the MyCuf TO BE – will be given by the difference between the two previously mentioned versions.

A 5 year-period case scenario was forecasted (2018-2022), which allowed the group to compute an estimated total impact value for the life of the project, assuming a perpetual growth (from 2022 onwards) of 1%.

It is estimated that the development of “MyCuf To Be” will generate the company additional positive cash flows¹ equivalent to 22.5 Million €, in today’s numbers.

However, before jumping into conclusions, it is important to bear in mind two important particularities about this rational:

1. These are numbers for relevant impact. Before proceeding to the investment it is crucial the company has in consideration the value of the investment, either in IT development or in app adoption & usage promotion.
2. This is an **optimistic approach**. In fact, one can not simply assume that by being provided a more efficient/preferable tool, clients will use it (Usage Rate) 100% of the times. Taking this into consideration, the group built a Scenario-Analysis Matrix. This way, it is possible to predict the various outcomes by fluctuating the two main drivers of Total Impact Value (Discount Rate and Usage Rate).

	2017	2018	2019	2022+
CONTACT CENTER	NA	43 859 €	332 285 €	517 792 €
FRONT OFFICE	NA	61 139 €	845 068 €	1 241 940 €
TOTAL	NA	104 998 €	1 177 353 €	1 241 940 €
DISCOUNTED	NA VALUE	104 998 €	1 101 359 €	TERMINAL
TERMINAL VALUE		22 507 830 €		
WACC		6.9%		
TOTAL IMPACT VALUE		26 471 639 €		
FTE	NA	8.3	95	141.9

¹The group recognizes this project as different from a revenue generation project. Yet, given the fact that savings are direct bottom line earnings, the group think it is fair to use this terminology

1. MEASURING IMPACT | relevant impact and scenario analysis (4/4)

The fluctuation of our two main outcome drivers will impact the value of the relevant impact ranging from 2.8 million€ to almost 41 million€. Usage rates will have a crucial part in this analysis.

WACC

- The rate used to discount the cash flows that will be generated in the future was provided by the client (6.9%). The fluctuation of this variable will directly affect the present value of the cash flows, such that the higher the rate, the lower will the estimated total impact value be. However, the group research on the topic confirmed this to be a fair estimation of the value to be used when discounting *Healthcare Information and Technology* cashflows².

USAGE RATE

- The percentage of times a client will use the MyCuf app knowing he is already an active user. This will be an extremely important driver once the estimated source of impact per client will depend directly on it, such that the lower the usage rate, the lower the estimated impact value per customer.
- It is possible to learn from the table that the corner values are the most extreme cases. The lowest value the development of MyCuf TO BE can generate is around €2.8M, whereas the highest is set above €40M.

WACC

		4,7%	6,9%	10%	15%
USAGE RATE	1	€ 40 937 012	€ 26 471 639	€ 17 659 015	€ 11 405 382
	0,75	€ 30 702 759	€ 19 853 729	€ 13 244 262	€ 8 554 036
	0,5	€ 20 468 506	€ 13 235 820	€ 8 829 508	€ 5 702 691
	0,25	€ 10 234 253	€ 6 617 910	€ 4 414 754	€ 2 851 345

²Damodaram Cost of Capital - Healthcare Information and Technology Industry

2. CHALLENGES

A medical drip chamber hanging from a metal stand, with a clear plastic bag containing a white substance and a clear tube attached. The background is a dark, teal color.

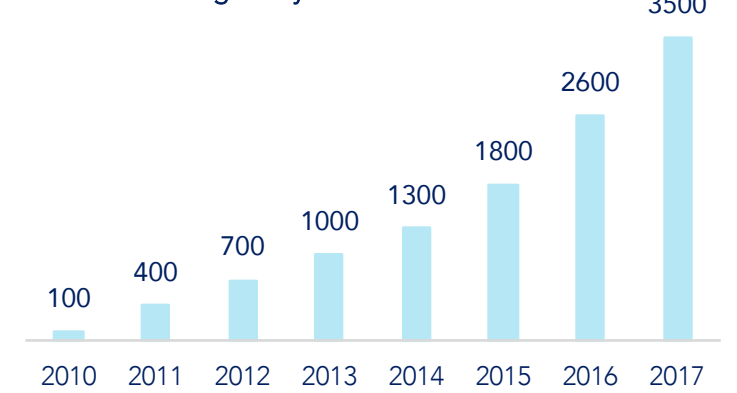
2. CHALLENGES | an overcrowded market (1/4)

Competition in the mobile apps market is fierce. In order to stand out from platforms and to become an agile tool, MyCuf must think strategically about possible services that can be integrated in the app or that can integrate MyCuf.

Statistics¹ reveal an increasing trend concerning the number of available mobile apps. If we also consider the increasing popularity of “health” related apps, it is reasonable to **expect even more competition for MyCuf** in the upcoming years.

A possible solution to overcome this issue is to take advantage of the increasing number of services available on app stores and **offer integrated services**. Despite the difficulty in assessing the feature “Partnership”’s easiness of implementation in the app MyCuf during the evaluation process, they can become even more relevant in the future if used as scale economy tools. Partnerships can be established either with health related services (e.g. pharmacies and insurers) or not (e.g. mobility)-

Number of available applications (thousands) in the Google Play Store from 2010 to 2017¹



EXAMPLES



Currently, MyCuf shows the nearest pharmacies based on the user’s location via GPS and this is provided in partnership with Farmácias Portuguesas (as it is stated in the app). This synergy can be extended to the online pharmacy shop. By using their electronic prescriptions, **MyCuf users could buy their medicines through Farmácias Portuguesas online store.**

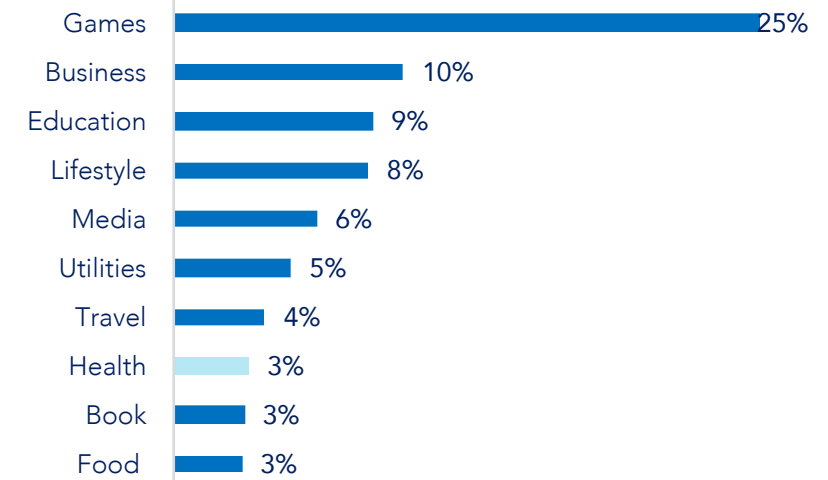


Insurance companies and subsystems providers, such as Médis or ADSE, can also integrate their apps services with MyCuf. Uploading the statements of expenditures through MyCuf’s invoices could be an interesting tool to make the the service faster and smoother and to improve the customer experience.



There are also opportunities to **develop synergies between existing apps that belong to the José de Mello Group**. For example, MyCuf’s appointments and exams could be payed through Via Verde’s devices that would validate the amount in debt when clients left the units’ parking lots. With a single account, the user could pay for both expenses at once.

Top 10 of most popular Google Play Store categories in January 2018, by share of available apps¹



¹ Statista, 2018

2. CHALLENGES | artificial intelligence & internet of things (2/4)

Artificial Intelligence (AI) is growingly becoming part of people's reality. The healthcare industry has been no exception and its players must develop their digital interfaces to incorporate AI's benefits. Additionally, the Internet of Things (IoT) has a variety of application domains, including healthcare, and MyCuf can be part of an IoT network to improve customer experience, mitigate human errors and increase efficiency.

Artificial Intelligence (AI)

Through neural networks designed on computer systems, Artificial Intelligence applications can allow computers to simulate and even expand the way the human mind processes data. Regarding healthcare, **these self-taught mechanisms can guarantee the quality of standardize processes either for diagnosis or for treatment of illnesses**, overcoming part of the human error. Dr. Robert Peal from Stanford University School of Medicine states that it is difficult to write the future of medicine without mentioning the rule of Artificial Intelligence¹.

The benefits of AI go beyond technical functions. According to Accenture, an AI network can potentially save 150 000 million \$ in annual operational costs for the North American healthcare industry by 2026². In 5 years time, it is expected that half of the customers choose each company's services based on their artificial intelligence instead of the brand they like today³. Therefore, **mobile apps must walk aside the emergence of these technological advancements** in order to maximize its associated advantages.

EXAMPLES (See Appendix 15)



Algorithmic Solutions. The creation of a chatbot* that could diagnose or, at least, advice users about the symptoms based on written messages could be the next big step for MyCuf.



Visual Tools. By taking a photo to a skin injury or even uploading an x-ray through MyCuf, the user could receive a diagnosis or a treatment plan. Still, the integration of this type of feature will depends on the app's software and also on its hardware development (computers and smartphones).

¹ Forbes, 2018, *Artificial Intelligence In Healthcare: Separating Reality From Hype*

² Accenture, 2017, *Artificial Intelligence – Healthcare's New Nervous System*

³ Accenture, 2017, *Technology Trends*

* A chatbot is an AI program that simulates conversation with human users, through written text and/or voice commands.

Internet of Things (IoT)

The Internet of Things is a **technology advancement that connects physical objects between each other**. The network enables communication among objects – data exchange. It is defined by three pillars: the presence of sensors, network connectivity and data interpretation velocity⁴.

The number of connected devices to IoT has been growing over the last 3 years and is expected to double in the next 5 years (2023)⁵. Moreover, the IoT may offer a worldwide potential economic impact of 4 to 11 million dollars per year in 2025¹. Considering this, app developers must prepare their companies' software to offer integrated versions of the IoT network.

Internet of Things connected devices installed base worldwide
(in American billions)²



Smart Beds. For situations in which the customer is not comfortable with the automatic adjustment, MyCuf could provide its users the software needed to transform their smartphones into a remote control for their beds or wheelchairs.



Medication Dispensers. MyCuf could make use of push-up notifications to send alerts to the users (or their relatives) telling them to take their pills.

⁴ McKinsey & Company, 2015, *Unlocking the potential of Internet of Things*

⁵ Statista, 2018

2. CHALLENGES | globalization (3/4)

Since the beginning of the national financial crisis, Portugal has increasingly broadened its openness to international trade. Tourism has been a flag of the Portuguese economic comeback and a signal of how important it is to provide services for foreign people.

The **rising number of immigrants and tourists in Portugal** shows us the country's potential to become an international reference either for living or just for visiting. In fact, Portugal has just been awarded as the best destination for tourism in the world, Porto was elected the best European city to visit and Lisbon took the first place for City Break¹.

Since 2009, the Portuguese economy has never been so open² to the global village as it is now. In the last 9 years, the openness degree ((Total of Exportations + Total of Importations) / Gross Domestic Product) increased from 63% to 83%. Portuguese companies must take internationalization as a challenge to grow in and outside the country.

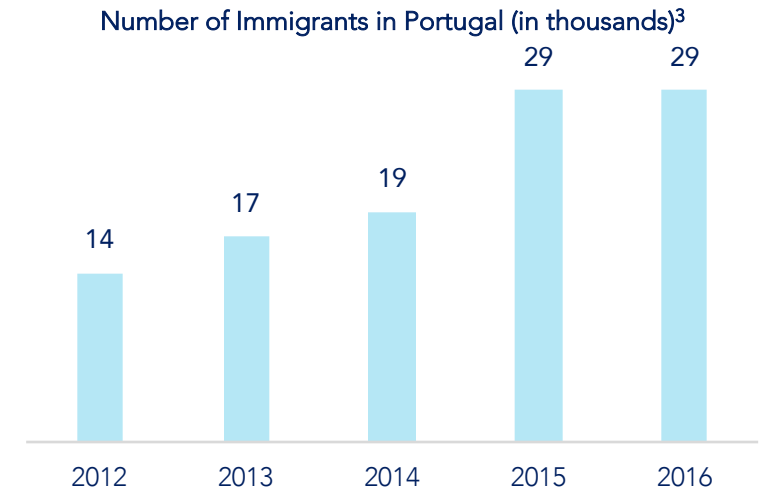
EXAMPLE

Launching MyCuf platform in other languages could be a first step towards the **engagement of CUF's services with non Portuguese speakers.**

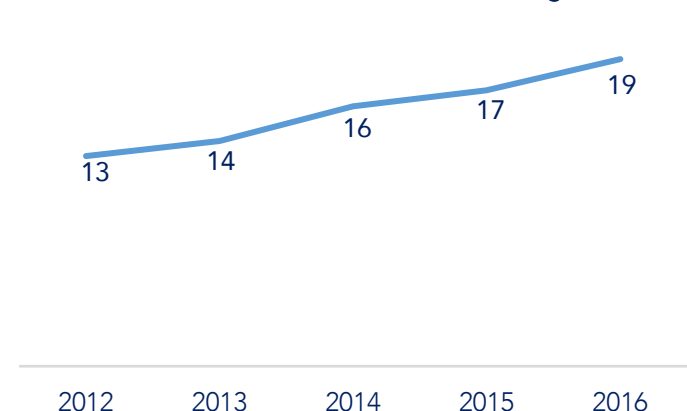


Una manera sencilla y segura de utilizar nuestros servicios.

¡Descarga la app ahora!



Number of non Portuguese guests (in millions) in touristic accommodations in Portugal⁴



¹ World Travel Awards, 2017 & 2018

² Pordata, 2018

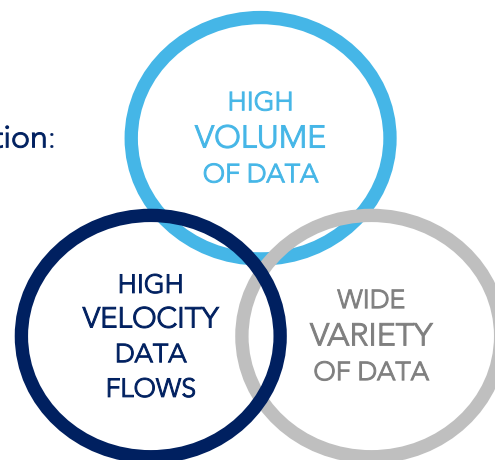
³ Pordata, 2018

⁴ INE, 2018

2. CHALLENGES | big data (4/4)

Big Data can improve the efficiency, effectiveness and quality of medical tasks. Despite the complexity of analysing and making decisions based on massive volumes of data, the provided output has infinite potential since it can combine a wide range of different information.

Big data can be presented as a “3 Vs” solution:

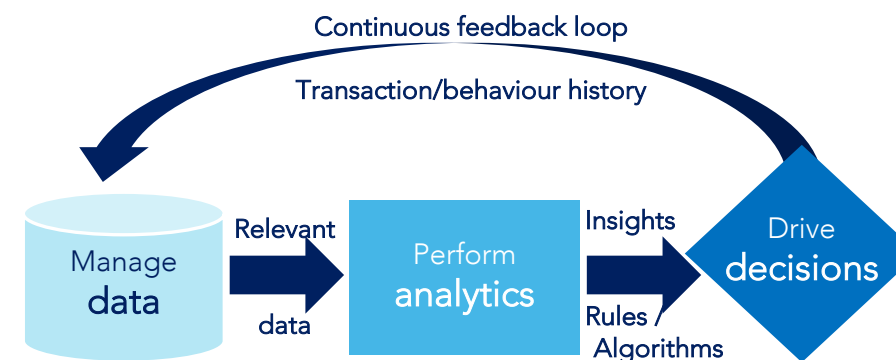


- While the ability to capture and store vast amounts of data has grown at an unprecedented rate, the technical capacity to aggregate and analyze these massive volumes has just taken its first steps¹.
- Big Data is changing the way business operate and compete. As more relevant data is generated, companies become more competitive as they invest in and successfully derive value from their data. This information can be obtained from emerging technologies and digital channels that offer better acquisition and delivery mechanisms. **MyCuf can be one of those channels if it works within a cloud to store data.**
- Using Data can bring great value to the Client. Yet, the Company must consider ownership and privacy issues before using big data results. In the case of medical data, sometimes it is not clear who is the owner of the data, but using the data without the right legal foundation or consent of the patient may cause serious problems.

¹ ICAEW IT Faculty, 2015, *Big data and analytics – what’s new?*

² Ernst & Young, 2014, *Big data Changing the way businesses compete and operate*

EY analytics value chain²



EXAMPLES

Vital Signs: Vitals such as blood pressure or insulin levels can be monitored and stored on a continuous and proactive basis through mobile devices software. These could then be sent to doctors in order to let them read and analyse the numbers. Alternatively, this info could be delivered to an AI tool that would provide real-time alerts to doctor, every time the vitals evidenced some kind of dangerous.

Chronic illnesses: MyCuf can be developed as a software that is capable of uploading multiple volumes of data on a cloud platform. Information would not need to be related with medication. Instead, it could be connected with patients’ daily routines in order to better understand how the disease and subsequent therapies impact their daily lives.

A stethoscope is the central focus, resting on a document that features a blue bar chart. To the left, a black pen is partially visible, and to the right, a pencil lies horizontally. The entire scene is overlaid with a semi-transparent dark blue filter. The text '3. IMPLEMENTATION PLAN' is centered in white, bold, uppercase letters.

3. IMPLEMENTATION PLAN

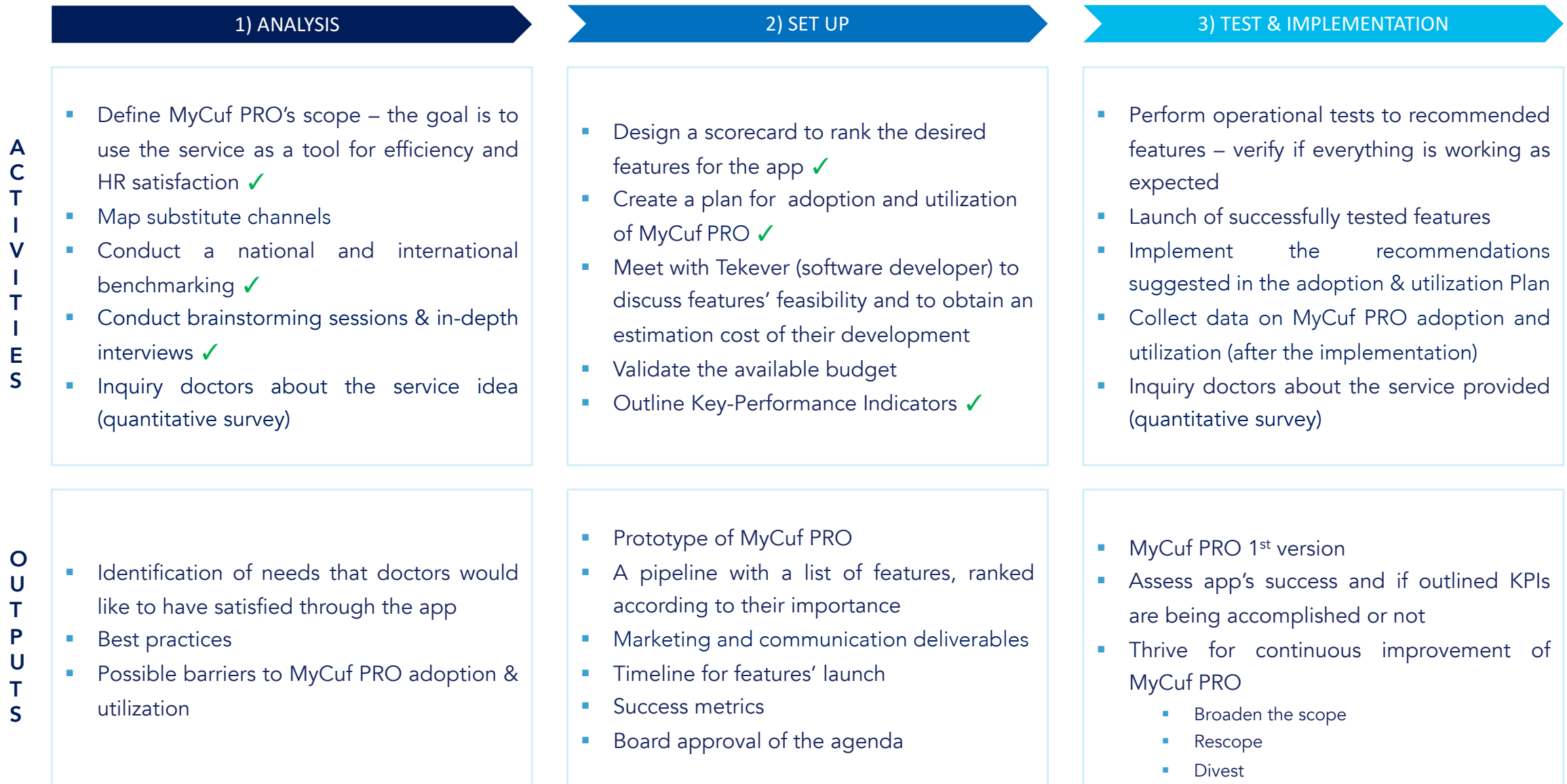
3. IMPLEMENTATION PLAN | MyCuf

The development of a new version for MyCuf can be divided in three phases: Analysis, Set-Up and Test & Implementation.



3. IMPLEMENTATION PLAN | MyCuf PRO (2/2)

The creation of MyCuf PRO can also be divided in three phases: Analysis, Set-Up and Test & Implementation.



A dark, semi-transparent background image showing two business people shaking hands over a desk. A laptop is open on the desk, and a woman's hands are visible in the foreground, holding a pen and writing on a document. The overall scene is dimly lit, emphasizing the central text.

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A stethoscope is positioned in the center of the frame, resting on a document. To its left, a black pen lies diagonally. To its right, a pencil is also visible. The background document features a bar chart with several blue bars of varying heights. The entire scene is overlaid with a semi-transparent dark blue filter. The word "APPENDIX" is centered in white, bold, uppercase letters.

APPENDIX



INDIVIDUAL REPORT | BELBINS | MARIA RAMALHO

The Belbin Analysis was important to understand how my personality can influence the project and tasks' performance. I identified most of the top 3 results of the Belbin Analysis as being real traces of who I am and how I work.

Comparing my behavior during the project with the top 3 results of the Belbin, I find a perfect match.

- **OPERATIONAL** – I believe this result fits me perfectly. I have always been a “straight-to-the-point person” and during this project it was no exception. I am also a very rational person therefore being emotionally stable. In these four months I always tried to meet the deadlines and keep the project organized. I worked efficiently and effectively to achieve the goals I proposed myself and the team to.
- **MONITOR** – This characteristic corresponds to someone who submits people to a certain standard of performance. Although I am not a person that likes to impose behavior in other people, I often tend to delegate and assign the tasks that need to be done as I am good at dealing with high amount of information and to organize it. Additionally, throughout the project, I offered and asked for feedback, which also fits the “Monitor” profile.
- **STRATEGIST** - I totally see myself as a strategist. Not only am I task-centered but I also like being responsible for the project. I am a very extroverted person and very determined. It is true that sometimes I tend to impose my personal points of view and this was a challenge during the project: to be determined but also flexible.

Regarding the Bottom 3 results, two of them surprised me for I am reluctant about these analysis' results.

- **PROSPECTOR** – I felt surprised when this “result” came out. Although it is true that I am not very creative, I am a very enthusiastic and social person who deals very well with stress. Therefore, I was not expecting the “Prospector” profile to be part of the bottom 3 of the analysis.
- **FINISHER** – This result also surprised me. In fact, although I am a very energetic person, I can be focused in doing a task that requires attention for a long time. I also review myself as a perfectionist as I always liked to keep an eye on the details during the project.
- **INTELLECTUAL** - I do consider myself as not very intellectual, since I am not very creative nor imaginative. As a very pragmatic and objective person, I barely see interest in following intellectual approaches. This is something I might need to improve in order to become a more patient person, which I am not.

TOP 3

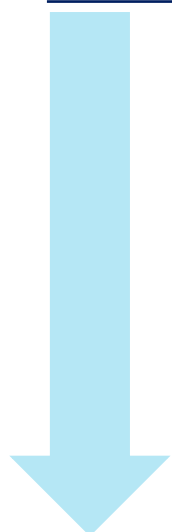


OPERATIONAL

MONITOR

STRATEGIST

BOTTOM 3



PROSPECTOR

FINISHER

INTELLECTUAL



INDIVIDUAL REPORT | BELBINS | MARIA RAMALHO

The real-life experience of the consulting business allowed me to realize key aspects I was not aware of before and to develop both personal and professional skills, essential for a future consulting career.

PERSONALLY

BE BOTH DETERMINED & FLEXIBLE

In a consulting project the consulting team is expected to respond to the client's needs in the most effective and complete way it can. Hence, it may happen that under the pressure of meeting deadlines you only want to present the team your solution or approach and to immediately put it into practice. However, as I will explain later, taking into consideration others' perspectives and opinions always carries additional value. I learned that it is important to be both determined and confident when defending my points of view if I consider them to be relevant but also flexible to be able to adapt to the others'. It is usually possible to reach an even more appropriate outcome.

TOGETHER MEANS BETTER

I believe this four-month-project helped all the team members to develop team working skills. Almost every step of the project, from the diagnosis to the elaboration of recommendations, needed the contribution and/or the approval of all the team members, as each of us was involved and assigned to tasks that depended on the others'. This does not mean that we always reached a consensus. Each one of us had to give in some personal ideas or points of view in favor of an overall output that could be understood and accepted by the whole team. What did happen was that the output drawn by the team as one was always more complete and adequate, enriching the project, than if it had been done individually disregarding the other members' input.

GIVE & ASK FOR FEEDBACK

One of the things I enjoyed the most about our team and the way we worked together was how often we would give feedback on each other's work or even behavior.

There were times in which our team decided to pause the project for some minutes just to analyze the current situation, enhance some things that were going well and encourage the work the others were doing, but also to honestly and stilly ask for a change of behavior if something was impairing the project or the relation between each team member. I found asking for feedback as important as giving it, because the others can help you know yourself better and make it easier to work with you.

PROFESSIONALLY

EVERY BUSINESS HAS ITS CONSTRAINTS

During the project our team faced both time and information constraints. As this was my first real-life experience as a consultant, I was not expecting having to wait weeks or even a month until a process could be concluded in order to proceed to the next step of the project. However, whenever you are dealing with people, data and processes, within an organization, you need to be prepared for different rhythms and work priorities. I have also learned that a consultant might not always have access to all the information he would like to in order to make accurate studies and recommendations. One needs to be both patient and persistent in overcoming these obstacles so as to add the most value possible to the client and the business.

KEEP ASKING

It took our team a few time to understand the business the company operates in, as the healthcare industry is a quite complex and sensitive sector. There were times I thought it might be good to avoid asking questions constantly, but soon I realized that understanding deeply the business and its environment was essential to come up with the most suitable solutions to the company's very specific needs. Hence, learning to ask questions with a sense of opportunity and courtesy is always a plus in the career of a consultant: not only does it show interest on the client's business but also allows you to produce a better outcome.

THERE ARE NO BAD IDEAS

One thing I have always heard throughout my life but finally lived in person is the that "there are no bad ideas". Not few were the times when, while discussing some ideas within the team, an idea that first seemed not to add much value or even totally non-sense, was later integrated in the project. Sometimes people have different perspectives, and it is not always a matter of being right or wrong. It might be just the case that you are looking to the glass in a different way. All the brainstorming sessions conducted during the project reinforced this statement, with many different people with a variety of backgrounds leveraged the value of the recommendations delivered to the client.



INDIVIDUAL REPORT | BELBINS | JOSÉ LUÍS SILVA

The Belbin Analysis was important to understand the different roles the members of the group have and how their personalities can impact the project. I identify myself with most of the results.

When comparing my personal evaluation of my behavior during the project with my Belbin's Top 3 results, I can say that they are quite coordinated.

As someone who likes to plan and to have everything clearly defined and organized, I could not identify myself more with the role of the operational. In fact, I tried to have that position within the team by establishing priorities and a plan of actions during the project. I am a very methodic person and I like objectives to be well defined before I start working on them.

In line with enjoying to have clear goals in mind, the President role suits me quite perfectly. In fact, as a very self-disciplined person, I tried to coordinate all the activities within the group in order to meet our client's (and own) goals.

The role of finisher is also very appropriate as I tend to be nervous about deadlines. I tried to be the person in the group that would check if timings were being respected and if details were being considered. I believe the group trusted me with that job and that I was able to deliver a good outcome.

Regarding my Bottom 3 results, I can understand why they come as my last roles:

Although I believe I am a very good teammate and someone that others like to work with, I am not the most altruistic person as I would rather have my own work done before going out to help others. However, I am a good listener and I always try to give the best advice possible when I believe it is needed.

I agree that the role of Prospector does not suit me as I do not consider myself a very creative person. Still, I really enjoy complementing other's ideas with my own.

Finally, the Intellectual role is definitely the one that does not match with my personality. Like the prospector, it requires being original in what ideas are concerned. I am very practical and pragmatic and some intellectual approaches may confuse. It is something I should work on.

TOP 3

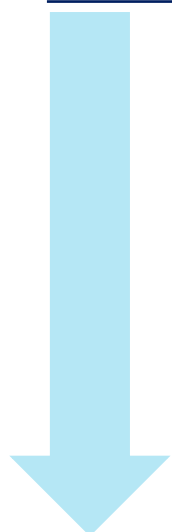


OPERATIONAL

PRESIDENT

FINISHER

BOTTOM 3



TEAMWORKER

PROSPECTOR

INTELLECTUAL



INDIVIDUAL REPORT | BELBINS | JOSÉ LUÍS SILVA

My experience in this consulting project allowed me to identify personal and professional skills that I believe are fundamental to thrive in the business world. All the key learnings were fundamental to successfully deliver this project.

PERSONALLY

CONSTANT FEEDBACK

Open communication was a regular practice of our group and it allowed us to keep us focused on the main goals. Giving feedback was crucial for the success of the project and also to strengthen the team as a whole. I really believe that honest and constructive feedback is a powerful tool to keep the group motivated and to reach better outcomes.

FLEXIBILITY

Being flexible is not always easy but it was something I really had to work on personally during the project when interacting with the client and with my group. Things do not always happen as planned and to be able to keep motivation and to adapt oneself to the circumstances is very important during a consulting project. I learned a lot about the importance of expecting the unexpected and to know how to deal with uncertainty and possible changes.

LEADERSHIP

I had the opportunity to develop my leadership skills throughout the project as the group had to establish priorities very often and plan the upcoming tasks. I consider myself a co-leader in the sense that I feel more comfortable in sharing the role of leader with someone else. As a co-leader, I believe I had the chance to add value to the group by bringing out the best in each member of the group.

PROFESSIONALLY

SYNDICATION

During the project, I learned how to work “with” the client by aligning interests instead of working “for” the client and simply perform the tasks needed. This required constant communication and regular meetings to make sure both sides had the same goals in mind throughout the project .

ASKING QUESTIONS

As our client said many times during our meetings, “asking the right question already provides you more than half of the answer”. I could not agree more as this revealed to be an essential part of our daily routines at JMS, especially during the meetings. Only by having the the right questions to ask thought in advance could we have achieved the results we achieved.

CONSTANT LEARNING

I never thought I could learn so much in such little time. In fact, four months proved to be enough for me to have a very clear idea of how working in consultancy might be and how to relate with the client. Everyday was a constant lesson and, through good and bad times, I am confident I have done as much as possible to absorb all the experiences, meetings, talks and advice. And for that I thank my colleagues, the client and our advisor Constança Casquinho.



INDIVIDUAL REPORT | BELBINS | **DIOGO RELVEIRO**

Compare your personal evaluation of your behavior during the project with Belbin's Top 3 results:

As the perception I have of myself, I think the personality traits that were assigned to me suit me well. During the project I believe I made efforts to keep the energy of the group up, as I always looked for a way to create a funny or less stressful moment. This is me, I enjoy talking to public, I like the spotlight! Throughout these months I have revealed to be an instrumental and task-centered member, able to take responsibility for the parts of the project that were assigned to me inside the team. I am confident I enjoy a good point of view, usually from above, where I believe I can see the entire picture, which is naturally when I feel the project is flowing right. It is also true that during this time I demonstrated to be a dominant player (sometimes too much I have to recognize), which is also one of my main personality traits. However, I do not acknowledge this as being necessarily bad. Additionally, I believe I do not crack under pressure, I am confident I can help the team by allocating the respective member resources to the necessities of the project, at urgent times, either with respect to their personality traits or their behavior as team members.

Regarding the Bottom 3 results, comparison:

Regarding the bottom 3 results, I am thankful to my team to help me overcome my weaknesses during the project. In what concerns with the role of finisher and operational, it was helpful to have a team behind me which helped me in establishing times and guidance for the project. In this context, comes also the monitor role, where the already mentioned timelines and scope of the project was with my teammates.

TOP 3

STRATEGIST

PROSPECTOR

PRESIDENT

BOTTOM 3

FINISHER

INTELLECTUAL

OPERATIONAL



PERSONALLY

Start Low & Build your Confidence from there

I am an extrovert and full of energy work member. Sometimes I open to much, and force people to get out of their comfort zone, and not everyone enjoys being challenged like that. I learned that sometimes you should start low, build your confidence and only then open and show my extrovert personality

Self-Control

I learned that my extremely energetic personality can also work against me. The way I defend my point of views sometimes are too extreme and expressive. I have to learn to listen first and only then talk. We have two ears and one mouth, we should use it in the proportions

PROFESSIONALLY

Managing Personalities

I believe one of the main takeaways from this project is that working in a context as the ones provided by consulting labs is indeed difficult to manage. Specially when you have a team full of proactive and smart members as I had. Personalities are definitely a difficult constrain to manage. Sometimes it is important to bear in mind that despite our divergencies, during working hours, all that is left behind



INDIVIDUAL REPORT | BELBINS | TIAGO ALMEIDA

Compare your personal evaluation of your behavior during the project with Belbin's Top 3 results

Concerning my personal evaluation during the work project with my Belbin's result, I can verify the similarities.

In such project as a consulting lab where real challenges are mitigate, I felt that my role as Intellectual was useful in overcoming problems by proposing solutions and evaluating the best ones. During the project was also important to have the right assumption and understand how to mitigate problems such as the lack of information, which highlighted my role as Intellectual. Once the project was developed in a team of 5 elements, the communication played a key role. Here, my role as a President helped the team to clarify the goals and the timeline. Although, the leader plays an important role in a team, it is also necessary the spirit of team work. During the last semester, I tried to promote unit within the group, which I believe is the best way to achieve a final goal.

Regarding the Bottom 3 results, comparison:

When working in a consultancy project, the interaction with the client is daily. During the work project the group interacted with different roles within JMS and for this I am thankful to my colleagues who helped me with the relations with the client once that I am not a person oriented for the communication with the outside of the group. As I was more concerned with the creative part of the work project, I can state my weakness as a finisher. Here, it was important to work as a group and help each other during the time we have been together. Finally, I acknowledge that I did not played a Strategic role in the team once it took me time to understand the process in the Healthcare Industry and the structure of JMS.

TOP 3

INTELLECTUAL

PRESIDENT

TEAM WORKER

BOTTOM 3

PROSPECTOR

FINISHER

STRATEGIC



INDIVIDUAL REPORT | BELBINS | TIAGO ALMEIDA

PERSONALLY

Friends

I had the fortunate to meet great people during the project which have became friends and that I would not know if it was by this project. With this, I understood that in every situation it is possible to meet new people which will bring happiness to my life.

Sacrifice

The sacrifice that the project required was not only professional but also personal. Here, I would like to thank my friends and my family that supported me during this time and that gave me strength to finish the project.

Accept the difference

When working in team or in contact with other people, it is important to know how to work with different people. The project gave that experience and I am now a person who can relate and work better with different personalities.

PROFESSIONALLY

Team Work

During the project I understood the importance of working as team with every member oriented for the same goal. Without the collective focus, the final result would not be achieved.

Work Effort

The project required a lot of effort from every member of the team but the result would not be the same without that effort, Looking backwards, I do not regret for the late hours spent in the empty office only with people from the team.

Perfection

The project gave me the need to look for perfection in every moment, not only to produce a good project, but also to be in line with the team. The sense of perfection in each task will be present in me from today onwards and will make me a better professional.



INDIVIDUAL REPORT | BELBINS | João Nuno Martins

I found Belbin's results a very interesting way to evaluate the role we took on the project and make us realize there is no better player than a team.

In such a time-consuming project as this Consulting Lab I think it is crucial to focus on what is essential – Client's satisfaction and Master's thesis grade. To achieve success we needed to be effective and work efficiently during 4 months. The first step was to draw a clear picture of the problem, in order to start thinking on the key of consultancy – strategy. A strong rational brought consensus and therefore made tasks division easy and fluent.

Hereafter, it was just a shortcut to come up with a demanding and feasible agenda, where each one of us knew what part of the puzzle belonged to him. Tasks and deadlines had to be regularly measured, so that we could understand if we were going the right way, or not. Here was when it was required critical thinking in order to self evaluate our work.

On a team's project, individual outputs must come as a single master piece. Story-telling was about having theme-suitable chapters, making relevant content interesting, coherent and fluent. A process that emerges from theories based on ideas.

I did not feel the need to make any kind of effort to bring harmony to the group. Despite the normal disagreements on some topics, the team focused on the outputs and was able to overcome any misunderstanding.

Efficiency was the most popular topic of our discussions. Usually because some of us found it needed to go for an extra-mile on research, where others thought to diverge from the scope. I think curiosity and enthusiasm are relevant personal skills, but can not go over effectiveness. Despite considering myself as a good under-pressure worker, I recognize I might not be as extroverted on work as I am outside the office.

Regarding competitive advantages, I felt stronger drawing attention to structural issues, rather than finishing topics. I believe to be a detail-oriented person, but regarding my colleagues profile I ended up to rely this task to others.

TOP 3

STRATEGIST

PRESIDENT

INTELLECTUAL

BOTTOM 3

TEAM WORKER

PROSPECTOR

FINISHER

INDIVIDUAL REPORT | BELBINS | João Nuno Martins

The overall experience was truly challenging. Not just by the exposure to real-life problems, but due to the team work performed.

PERSONALLY

Always be polite

You never know the day of tomorrow and who is sitting beside you. Always be nice to others. I was blessed to realize this in an early stage of my life.

Time management

Considering this Consulting Lab as my first professional experience, I found the need to efficiently manage my personal time.

Resilience

No matter how important the issue is, there is always a beginning and a finishing. This is nothing but a process, with a day 1 and delivery the date. What happens in the meanwhile it is just up to us.

PROFESSIONALLY

Do not leave for tomorrow, what you can ask today

Information access can be quite difficult, specially when you are in the bottom of the company's hierarchy. But it is also true that there is no better source of empiric knowledge than field professionals. Even when a director was not available to attend us, we looked for his employees, and most of the times got our answers responded.

Team works always pay off

It was impressive how synergies emerge so evidently on the group. Looking backwards, the experience could never be so enriching as it was, if my colleagues were not beside. The importance to accept others' feedback and leveraging their insights to bring something greater is an incredibly learning that I take.

Bring happiness to work

Now that the project is over, I realize I could engage more with other people, apart from the direct players on the Consulting Lab. Namely, the workers that were in the open space of us.

Database of CUF Clients - Variable "Total Number of Visits" (1/3)

Table 1 - Yearly Total Number of Visits per Gender

Gender	2014	2015	2016	2017	Total
Female	352,764	381,691	414,844	461,114	810,547
Hybrid	264	277	257	268	562
Undefined	88	91	78	76	218
Male	266,664	293,067	313,003	347,344	655,223
N/A	1,220	1,293	1,399	1,614	2,697

Table 2 - Yearly Total Number of Visits per Age

Faixa Etária Episódio	2014	2015	2016	2017	Total
<=5	56,607	59,017	62,615	68,515	136,689
6-10	37,620	40,949	44,321	48,084	98,479
11-15	29,155	32,887	36,400	40,862	84,040
16-20	24,989	28,598	32,821	38,090	78,526
21-25	27,131	30,629	34,727	38,789	87,129
26-30	34,969	37,676	40,914	44,946	104,105
31-35	51,966	53,791	55,674	58,440	137,387
36-40	61,996	66,451	70,479	74,417	166,455
41-45	52,366	60,015	68,380	77,234	156,721
46-50	44,557	49,401	55,459	63,428	130,131
51-55	41,465	45,878	51,242	57,640	119,658
56-60	39,155	43,248	47,770	53,262	111,618
61-65	37,461	40,636	44,721	49,749	104,023
66-70	31,739	36,311	40,986	46,217	92,742
71-75	22,553	26,200	30,127	35,527	69,930
76-80	17,525	20,207	22,520	25,672	52,891
81-85	11,485	13,124	14,862	17,101	35,539
86-90	5,596	6,472	7,298	8,443	17,932
91-95	1,534	1,994	2,303	2,751	5,704
96-100	224	263	351	421	884
>101	249	214	132	156	618
-	19,772	20,081	6,965	5,471	44,314
Total	620,979	676,395	729,558	810,395	1,469,163

APPENDIX 1 | 1.2. A&U PLAN | market segmentation | generations (8/29)

Database of CUF Clients - Variable "Total Number of Visits" (2/3)

Table 3 - Yearly Total Number of Visits per Speciality

Ano	2014		2015		2016		2017		Total
Tipo Rúbrica	Clientes	Número Visitas por Cliente	Clientes	Número Visitas por Cliente	Clientes	Número Visitas por Cliente	Clientes	Número Visitas por Cliente	Clientes
ANATOMIA PATOLÓ	67,699	1.5	74,192	1.6	75,962	1.6	84,569	1.7	219,562
ARQUIVO	526	1.0	537	1.0	264	1.0	265	1.0	1,568
AVENÇAS	864	1.1	1	1.0	1	1.0	-	-	866
BLOCOS	41,499	1.2	45,577	1.1	46,825	1.1	50,953	1.1	162,969
CHECK-UP	8,978	1.1	9,015	1.1	9,261	1.1	9,636	1.1	24,839
CIRURGIAS	63,908	1.5	67,533	1.4	65,558	1.3	71,371	1.3	222,076
CONSULTA EXTERN	459,535	2.8	511,675	2.9	560,057	2.9	628,438	2.9	1,147,865
CONSUMOS	11,724	1.4	12,784	1.4	13,338	1.3	15,095	1.3	43,926
DIVERSOS	-	-	-	-	-	-	1	1.0	1
EQUIPA CIRURGICA	44,591	2.7	49,792	2.2	52,787	2.1	57,875	2.1	178,230
EXAMES ESPECIAIS	296,378	1.9	322,921	2.0	340,585	2.0	385,950	2.0	832,784
FARMACOS	3,440	1.1	4,095	1.0	2,986	1.0	373	1.0	10,172
GENETICA	27	1.0	20	1.1	26	1.0	12	1.2	84
HOSPITAIS DE DIA	1,368	6.3	1,393	5.6	1,522	5.7	1,710	5.5	4,269
IMAGIOLOGIA	249,821	1.6	273,421	1.7	294,065	1.7	324,996	1.7	712,356
IMUNOHEMOTERAP	3,789	1.6	4,091	1.5	4,074	1.6	4,439	1.5	15,350
INTERNAMENTO	19,804	1.1	21,079	1.1	23,675	1.1	25,826	1.1	83,178
Internamento GDHS	32,592	1.1	33,971	1.1	36,084	1.1	39,253	1.1	128,467
MEDICINA DENTARI	151	1.2	223	1.3	171	1.4	230	1.2	729
MEDICINA FISICA E	19,539	13.6	20,864	12.5	20,587	12.6	18,628	14.4	64,741
MEDICINA NUCLEAF	3,216	1.1	3,426	1.1	3,209	1.1	3,258	1.1	12,081
N/A	14,816	1.6	17,503	1.6	19,382	1.6	22,892	1.6	52,097
PACOTES	949	1.1	1,206	1.1	1,049	1.2	1,073	1.1	4,091
PATOLOGIA CLINIC	159,819	1.6	176,291	1.7	191,738	1.8	212,931	1.8	475,361
SERVIÇOS E TÉCNIC	73,223	1.6	84,079	1.7	93,880	1.8	103,123	1.9	282,689
URGÊNCIAS	168,329	1.5	178,219	1.5	191,357	1.6	207,147	1.5	487,132
-	8	1.0	4	1.0	6	1.0	5	1.0	17
Total	620,979	3.9	676,395	4.0	729,558	4.0	810,395	4.0	1,469,163

Database of CUF Clients - Variable "Total Number of Visits" (3/3)

Table 4 - Yearly Total Number of Visits per Healthcare Unit Center

Unidade	2014	2015	2016	2017	Total
CCA	51,840	57,151	60,861	63,994	153,086
CCAL	-	-	1,930	33,734	34,296
CCB	45,520	46,487	48,397	48,520	122,101
CCC	72,388	80,307	85,812	89,246	174,488
CCM	8,282	10,354	12,209	13,224	24,215
CCMF	-	8,862	16,483	23,895	38,975
CCS	5,193	14,786	20,108	24,643	41,588
CCSDR	11,057	17,984	22,582	25,085	47,104
CCSJM	-	-	-	7,429	7,429
CCTV	48,394	52,449	56,474	58,148	108,557
HCD	212,512	225,150	233,874	246,473	511,727
HCIS	123,667	127,676	130,742	131,531	304,104
HCP	93,887	104,880	113,385	119,388	249,002
HCS	19,729	25,952	33,982	37,841	72,454
HCV	-	6	11,231	34,571	40,377
ICDT	60,830	65,909	70,248	75,702	164,065
Total	620,979	676,395	729,558	810,395	1,469,163

Sample Survey (1/2)

1. How many times do you go to the hospital per year?

(Please answer here)

2. Which communication channel do you use more often to contact your hospital?

(Please answer here)

3. On average, how much time do you spend in a phone call with your hospital?

- A) I don't usually call the hospital
- B) Less than 2 minutes
- C) Between 2 and 5 minutes
- D) More than 5 minutes

4. On average, how long do you spend in the reception of your hospital (waiting line included)?

- A) Less than 2 minutes
- B) Between 2 and 5 minutes
- C) More than 5 minutes

5. Does your hospital of preference have a mobile application to its clients?

- Yes
- No

Do you use it?

- Yes
- No

Why not?

(Please write down here)

How did you find about it?

(Please write down here)

Disclaimer: Despite the number of questions, the group chose, given the small relevance of the survey (as well as its purpose), to only make real use of the answers to the questions 3, 4, 6, 7 and 9

Sample Survey (2/2)

(Brief description of an hypothetical mobile health app)

6. Please rate the above app in terms of utility in a scale from 1 to 4 where 1 is "useless" and 4 is "very useful"

(Please answer here)

6.1. Would you use it?

Yes

No

Why not?

(Please write down here)

6.2. What would be the most effective way of communicating you the app?

A) TV

C) Other: *(please specify)*

B) Front Office

7. From the tasks presented below, please select the ones you have already performed with your smartphone.

A) Call a mean of transportation

C) Use GPS

B) Online purchases

D) Bank account balance checking

8. What is your gender?

Male

Female

9. How old are you?

(Please answer here)

Client Survey (1/4)

(Brief explanation of the project and its aim)

Awareness & Usage

1. Do you know MyCuf?

- Yes No

(If the interviewee answered "No" to this question, pull automatically to question 5)

2. Have you downloaded the app to your smartphone?

- Yes No

Why not?

- I don't think it is useful I don't rely on mobile healthcare Other: *(please specify)*

(If the interviewee answered "No" to this question, after answering "Why not?", pull automatically to question 7)

3. For what reasons do you use the app?

- Dropdown list of MyCuf's features I don't use it

(If the interviewee answered "No" to this question, make available question 4 and pull automatically to question 7 afterwards)

4. Among of the following, which do you consider to be the main barrier to MyCuf utilization?

(Multiple choice question with the alternatives resulting from the brainstorming session regarding the main barriers to app adoption and utilization)

- ... Other: *(please specify)*

Client Survey (2/4)

Perception & Features

5. Do you perceive MyCuf as an app easy to use?

Yes No

6. How likely would you recommend the app to your relatives and friends?

I would definitely recommend it I would probably recommend it I would not recommend it

7. What features do you think would add value to the app?

(Please write down here)

8. Please assign the following features into "Relevant" and "Not Relevant" categories in a descending order of relevance.

	Relevant	Not Relevant	
R E L E V A N C E ↓			Features · Check-in · Allowable Cost · Written Communication · Communication with Image Upload ...

Adoption

9. Which measures would make you download/use more the app?

... Other: *(please specify)*

(Multiple choice question with the solutions presented in the Adoption & Utilization Plan to the barriers identified)

Competition Awareness

10. Do you know any other mobile healthcare app from healthcare providers?

Yes

No

Which?

(Please write down here)

11. How would you position MyCuf relatively to the apps mentioned above?

Much better

Similar to

Relatively worse

Better

A lot worse

Demographics

12. What is your gender?

Male

Female

13. How old are you?

(Please answer here)

14. What is your area of residence?

Dropdown list of all Portuguese districts

Client Survey (4/4)

15. What is your profession?

(Please answer here)

16. Please choose your degree of scholarship:

No scholarship

Basic School (until 9th Grade)

Bachelor or superior

Primary School (until 4th Grade)

Secondary School (until 12nd)

17. What is your insurer?

Dropdown list of all Portuguese insurance companies *(Possibility of choosing more than one)*

Survey Relevant Outcome

Analysis of Frequency TU	1	2	3	4	5	Average	Transformed Average (1-4)
Gen Y	0	6	6	4	32	4,29	3,43
Gen X	0	4	4	4	2	3,29	2,63
Gen BB	6	8	4	6	2	2,62	2,09
Silent Gen	4	0	0	0	0	1,00	0,80

Note: The results from question 7 were coded from 1 to 5:
 1- If none of the 4 alternatives was chosen
 2- If one of the 4 alternatives was chosen
 3- If two of the 4 alternatives was chosen
 4- If three of the 4 alternatives was chosen
 5- If four of the 4 alternatives was chosen
 The average was transformed on a 1 to 4 scale.

Analysis of Frequency PU	1	2	3	4	Average
Gen Y	0	0	16	32	3,67
Gen X	0	0	0	14	4,00
Gen BB	0	0	10	16	3,62
Silent Gen	2	2	0	0	1,50

Note: Results from question 6 were coded on a scale from 1 to 4:
 Rating from 1 to 4 of the perceived usefulness of the hypothetical mobile app

Analysis of Frequency FO time	0	1	3,5	6,5	Average
Gen Y	0	4	22	22	4,67
Gen X	0	0	4	10	5,64
Gen BB	0	4	12	10	4,27
Silent Gen	0	0	2	2	5,00

Avg Time	Mid Point
0	0
Até 2	1
de 2 a 5	3,5
mais de 5	6,5

Note: Mid points in the answers were assumed to code the qualitative answers, in order to compute the average.
 -Cost Factor was computed with the average of waiting times (FO and CC) weighted on the number of estimated visits/calls.
 -The factor was transformed to a 1 to 4 scale.

Analysis of CC call time	0	1	3,5	6,5	Average
Gen Y	10	14	18	6	2,42
Gen X	4	0	2	8	4,21
Gen BB	4	8	10	4	2,65
Silent Gen	0	0	4	0	3,50

	Avg FO time	Estimated Avg # Visists 2017	Avg Call time	Estimated Avg # of Calls 2017	Cost Factor (1.25-6.5)	Converted Cost Factor (1-4)
Gen Y	4,67	0,99	2,42	4,87	2,80	1,72
Gen X	5,64	1,09	4,21	4,87	4,47	2,75
Gen BB	4,27	1,10	2,65	4,87	2,95	1,82
Silent Gen	5,00	1,11	3,50	4,87	3,78	2,32

Computations & Assumptions (1/4)

1. We were given the database "yearly visits" per age, with numbers for the years 2014, 2015, 2016, and 2017

Yearly Visits Per age		2014	2015	2016	2017
Gen Z	<=5	56 607	59 017	62 615	68 515
	6-10	37 620	40 949	44 321	48 084
	11-15	29 155	32 887	36 400	40 862
	16-20	24 989	28 598	32 821	38 090
Gen Y	21-25	27 131	30 629	34 727	38 789
	26-30	34 969	37 676	40 914	44 946
	31-35	51 966	53 791	55 674	58 440
	36-37	24 798	26 580	28 192	29 767
Gen X	38-40	37 198	39 871	42 287	44 650
	41-45	52 366	60 015	68 380	77 234
	46-50	44 557	49 401	55 459	63 428
	51-53	24 879	27 527	30 745	34 584
BB	54-55	16 586	18 351	20 497	23 056
	56-60	39 155	43 248	47 770	53 262
	61-65	37 461	40 636	44 721	49 749
	66-70	31 739	36 311	40 986	46 217
Silent Gen	71-72	9 021	10 480	12 051	14 211
	73-75	13 532	15 720	18 076	21 316
	76-80	17 525	20 207	22 520	25 672
	81-85	11 485	13 124	14 862	17 101
	86-90	5 596	6 472	7 298	8 443
	91-95	1 534	1 994	2 303	2 751
	96-100	224	263	351	421
	>101	249	214	132	156
	-	19 772	20 081	6 965	5 471
Total		650 114	714 042	771 067	855 215

2. We were given the "accumulated number of people" per age at the end of 2017

Accumulated number of people per age		2017
Gen Z	<=5	136 689
	6-10	98 479
	11-15	84 040
	16-20	78 526
Gen Y	21-25	87 129
	26-30	104 105
	31-35	137 387
	36-37	66 582
Gen X	38-40	99 873
	41-45	156 721
	46-50	130 131
	51-53	71 795
BB	54-55	47 863
	56-60	111 618
	61-65	104 023
	66-70	92 742
Silent Gen	71-72	27 972
	73-75	41 958
	76-80	52 891
	81-85	35 539
	86-90	17 932
	91-95	5 704
	96-100	884
	>101	618
	-	44 314
Total		1 835 515

3. We were given the "actual number of clients" in each year and the "accumulated" at the end of 2017

	2014	2015	2016	2017	Accumulated
Actual Number of Cients	620 979	676 395	729 558	810 395	1 469 163

Note: "Accumulated number of people" differs from "actual accumulated number of clients" because there are people that are not clients anymore.

Computations & Assumptions (2/4)

4. We computed the weights of each age segment in the total of "accumulated number of people" per age in 2017

	Accumulated number of people per age	2017	In % of the Total
Gen Z	<=5	136 689	7,45%
	6-10	98 479	5,37%
	11-15	84 040	4,58%
	16-20	78 526	4,28%
Gen Y	21-25	87 129	4,75%
	26-30	104 105	5,67%
	31-35	137 387	7,48%
	36-37	66 582	3,63%
Gen X	38-40	99 873	5,44%
	41-45	156 721	8,54%
	46-50	130 131	7,09%
	51-53	71 795	3,91%
BB	54-55	47 863	2,61%
	56-60	111 618	6,08%
	61-65	104 023	5,67%
	66-70	92 742	5,05%
Silent Gen	71-72	27 972	1,52%
	73-75	41 958	2,29%
	76-80	52 891	2,88%
	81-85	35 539	1,94%
	86-90	17 932	0,98%
	91-95	5 704	0,31%
	96-100	884	0,05%
	>101	618	0,03%
	-	44 314	2,41%
	Total	1 835 515	

5. We assumed the same distribution for the "actual number of clients" in 2017 to obtain the "estimated the number of clients" per age

	2017
Actual number of Clients	810 395

Note: i.e., 60,349 = 7.45% x 810,395

	Age	Estimated number of clients
Gen Z	<=5	60 349
	6-10	43 479
	11-15	37 104
	16-20	34 670
Gen Y	21-25	38 468
	26-30	45 963
	31-35	60 657
	36-37	29 397
Gen X	38-40	44 095
	41-45	69 194
	46-50	57 454
	51-53	31 698
BB	54-55	21 132
	56-60	49 280
	61-65	45 927
	66-70	40 946
Silent Gen	71-72	12 350
	73-75	18 525
	76-80	23 352
	81-85	15 691
	86-90	7 917
	91-95	2 518
	96-100	390
	>101	273
	-	19 565
	Total	810 395

Total	2017
Gen Z	175 603
Gen Y	174 485
Gen X	202 440
Gen BB	169 636
Silent Gen	65 485

Note: Total per generation, which is equal to the sum of each age segment within each generation

Computations & Assumptions (3/4)

6. We computed the "average estimated number of visits" per age in 2017 dividing the "yearly visits" per age in 2017 by the "estimated number of clients" in 2017

	Age	Yearly Visits Per age 2017	Estimated number of clients 2017	Average Estimated Number of Visits 2017
Gen Z	<=5	68 515	60 349	1,14
	6-10	48 084	43 479	1,11
	11-15	40 862	37 104	1,10
	16-20	38 090	34 670	1,10
Gen Y	21-25	38 789	38 468	1,01
	26-30	44 946	45 963	0,98
	31-35	58 440	60 657	0,96
	36-37	29 767	29 397	1,01
Gen X	38-40	44 650	44 095	1,01
	41-45	77 234	69 194	1,12
	46-50	63 428	57 454	1,10
	51-53	34 584	31 698	1,09
BB	54-55	23 056	21 132	1,09
	56-60	53 262	49 280	1,08
	61-65	49 749	45 927	1,08
	66-70	46 217	40 946	1,13
Silent Gen	71-72	14 211	12 350	1,15
	73-75	21 316	18 525	1,15
	76-80	25 672	23 352	1,10
	81-85	17 101	15 691	1,09
	86-90	8 443	7 917	1,07
	91-95	2 751	2 518	1,09
	96-100	421	390	1,08
	>101	156	273	0,57
	-	5 471	19 565	0,28
	Total	855 215	810 395	

Total	2017
Gen Z	1,11
Gen Y	0,99
Gen X	1,09
Gen BB	1,10
Silent Gen	1,11

Note: "Average estimated number of visits" 2017 weighted on the "estimated number of clients" 2017.

Computations & Assumptions (4/4)

7. We were given the "actual number of [received] calls" for the year 2017

	# Received Calls
JAN	277 315
FEB	239 245
MAR	287 897
APR	235 336
MAY	288 678
JUN	248 326
JUL	248 284
AUG	227 798
SEP	266 671
OCT	281 533
NOV	273 810
DEC	217 543
Total	3 092 436

- 8. We computed the "estimated number of calls" per age in 2017 by assuming the same distribution as the one of the "actual number of clients" in 2017
- 9. We assumed the ratio between "actual number of calls" in 2017 and the "estimated number of clients" in 2017 (excluding generation Z)¹ to be the "average estimated number of calls" by age for the remaining generations, and therefore will be equally distributed between age segments

Actual number of calls 2017 3 092 436

	Age	Estimated number of clients 2017	% of the total excluding gen Z	Estimated number of calls	Average Estimated number of calls
Gen Z	<=5	60 349	0,0%	-	-
	6-10	43 479	0,0%	-	-
	11-15	37 104	0,0%	-	-
	16-20	34 670	0,0%	-	-
Gen Y	21-25	38 468	6,1%	187 400	4,87
	26-30	45 963	7,2%	223 913	4,87
	31-35	60 657	9,6%	295 497	4,87
	36-37	29 397	4,6%	143 207	4,87
Gen X	38-40	44 095	6,9%	214 811	4,87
	41-45	69 194	10,9%	337 082	4,87
	46-50	57 454	9,1%	279 891	4,87
	51-53	31 698	5,0%	154 419	4,87
BB	54-55	21 132	3,3%	102 946	4,87
	56-60	49 280	7,8%	240 072	4,87
	61-65	45 927	7,2%	223 737	4,87
	66-70	40 946	6,5%	199 473	4,87
Silent Gen	71-72	12 350	1,9%	60 163	4,87
	73-75	18 525	2,9%	90 245	4,87
	76-80	23 352	3,7%	113 760	4,87
	81-85	15 691	2,5%	76 439	4,87
	86-90	7 917	1,2%	38 569	4,87
	91-95	2 518	0,4%	12 268	4,87
96-100	390	0,1%	1 901	4,87	
>101	273	0,0%	1 329	4,87	
-	19 565	3,1%	95 312	4,87	
Total		810 395			

Total	2017
Gen Z	0,00
Gen Y	4,87
Gen X	4,87
Gen BB	4,87
Silent Gen	4,87

¹ Generation Z was assumed not to call to hospital healthcare provider, and will have number of calls equal to zero.
² This means assuming that only the clients that went to the healthcare unit on that year called to the CC.

There are many benefits related with the creation of blog segments in company's digital interfaces¹:

1. **Increases search engine traffic:** *"More pages from your domain become indexed in search engines"*
2. **Humanizes your brand:** *"Share your voice and personality (...) increasing your brand's likeability"*
3. **Supports your social media initiatives:** *"Share your blog posts on social media increase traffic to your business website"*
4. **Builds authority in your industry:** *"Establish your brand as an expert in your field"*
5. **Improves conversion rates:** *"Businesses who prioritize blogging experience a 13X increase in ROI"*
6. **Helps generate inbound links:** *"Important for SEO (...) generate significant referral traffic back to your site"*
7. **Helps you rank for long-tail search queries:** *"More chances to rank for less common, but higher-converting keyword phrases"*
8. **Increases leads:** *"More content means more (...) ultimately, more sales."*
9. **Facilitates valuable discussions:** *"Gain new insights into your customers' need"*
10. **Allows you to achieve 'freshness':** *"More likely to be timely or news-related, which means exposure"*



Blogs "provide means to share passion with the world and to foster an active community of readers who provide comments on the author's posts"

in The New Rules Of Marketing & PR Book

¹10 benefits of blogging, Forbes Magazine; ²Journal of Health Management, SAGE Journals, (2013) – Mayo Clinic Blogs Case Study

Promotion in social media networks will be done in two formats: paid (adwords) and owned (share of created content). It is expected that both will lead to more word-of-mouth (earned media).

Examples presented for Instagram and Facebook that can be replicated for all the desired social networks.





saudeCUF 15h

Marcar consultas é fácil e rápido. @SaudeCUF #MyCUF

PAID ADVERTISEMENT



CONTENT SHARE



A



A



A



B



or



B

“Social media is a hybrid element of the promotion mix because in a traditional sense it enables companies to talk to their customers, while in a nontraditional sense it enables customers to talk directly to one another. managers must learn to shape consumer discussions (...) providing consumers with networking platforms, and using blogs, social media tools, and promotional tools to engage customers.”¹

¹ Social media: The new hybrid element of the promotion mix

APPENDIX 8 | 1.2. ADOPTION & UTILIZATION PLAN | recommendations (26/29)

It is crucial for MyCuf's success to integrate both versions of the service – website and app in a smooth process, so that users can find themselves comfortable on any platform.

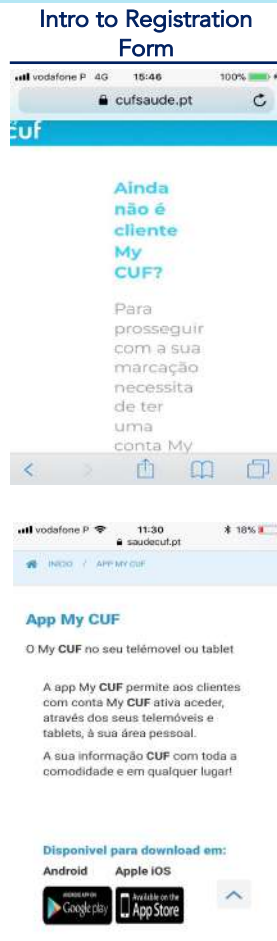
DIGITAL – SEARCH ENGINE OPTIMIZATION

CONVERSION RATE

The trial version of Mobile-Friendly test assessed 7¹ pages of MyCuf's website.



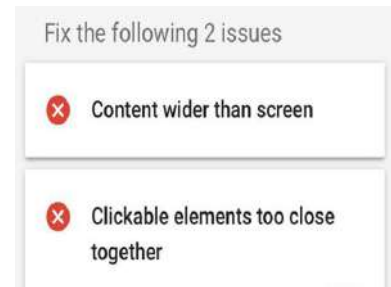
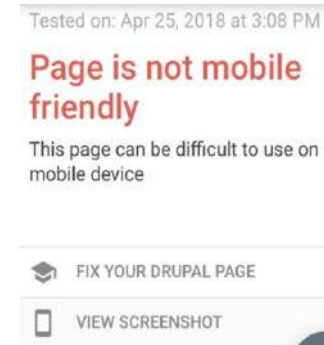
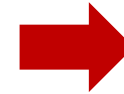
Client's Menu, MyCuf Tab



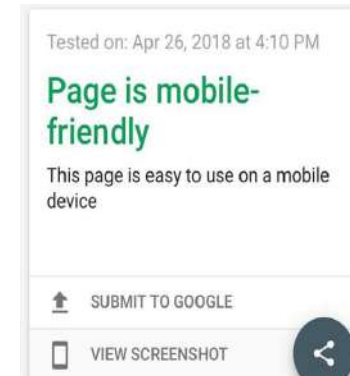
Briefing App MyCuf



Link to Appstore



Print screen of Google's Mobile-Friendly test result.



Print screen of Google's Mobile-Friendly test result.

¹ The trial (free) version has a limit of 7 pages per website. Therefore it was not possible to address all the website pages.

Quantitative Survey to Doctors (4/5)

3. For you, it would be more convenient to access this application through:

- Mobile phone Both
 Computer

4. Finally, please use this additional space with any suggestion that you may consider interesting:

(Please write down here)

To complete the survey, please fill in the following characterization parameters:

5. Age:

- Until 35 46 - 55 More than 65
 36 - 45 56 - 65

6. Area of specialization

(Please answer here)

7. Number of working hours with CUF

- Less than 8 17 - 40
 8 - 16 More than 40

Quantitative Survey to Doctors (5/5)

8. For how many years have you been working with CUF?

- Until 5 years More than 10 years
 6 – 10 years

9. Please point out, from the alternatives below, the one that suits you the most:

- CUF is the only big healthcare provider I work with
 I work with other providers beyond CUF but CUF is the main one
 I work with other providers beyond CUF and CUF is not the main one

10. Do you work only in one CUF unit? If so, which one? If not, which do you consider to be the most relevant?

- | | |
|--|--|
| <input type="radio"/> Hospital CUF Infante Santo | <input type="radio"/> Clínica CUF São Domingos de Rana |
| <input type="radio"/> Hospital CUF Descobertas | <input type="radio"/> Clínica CUF Miraflares |
| <input type="radio"/> Hospital CUF Porto | <input type="radio"/> Hospital CUF Santarém |
| <input type="radio"/> Instituto CUF Porto | <input type="radio"/> Hospital CUF Viseu |
| <input type="radio"/> Clínica CUF Belém | <input type="radio"/> Clínica CUF Almada |
| <input type="radio"/> Clínica CUF Alvalade | <input type="radio"/> Clínica CUF São João da Madeira |
| <input type="radio"/> Hospital CUF Torres Vedras | <input type="radio"/> Hospital CUF Coimbra |
| <input type="radio"/> Hospital CUF Cascais | <input type="radio"/> Hospital de Braga |
| <input type="radio"/> Clínica CUF Mafra | <input type="radio"/> Hospital Vila Franca de Xira |
| <input type="radio"/> Clínica CUF Sintra | |

Thank you for your time.

APPENDIX 10 | 1.3. MYCUF PRO | recommendations | features | sources

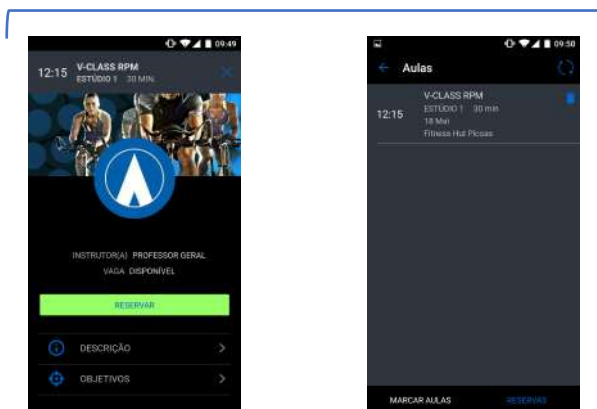
It is very important that the cancelation process is as easy as possible for doctors so they want to use the app to perform such task. The features “View Appointments’ Schedule” and “Cancel Appointment” are further explained below as they are crucial to this process.

- “View Appointments’ Schedule” will be available through the app but it will also be integrated in the smartphone calendar.
- This way, doctors will have a personal agenda that merges personal with work life for an easier schedule consultation.

There are already some apps that do the same, such as the Fitness Hut app.

- The feature “Cancel Appointment” will be very easy to use too.
- Doctors will only have to open the app, go to the agenda and select the specific appointments or days they wish to cancel. Then they will only have to confirm the cancelation on the pop-up message that will appear.
- By doing this, the action will generate a task in CRM, a software program that is already used in the company’s Contact Center (shown below). As the appointments were canceled, it will be the CC’s responsibility to call the clients and reschedule the appointments.

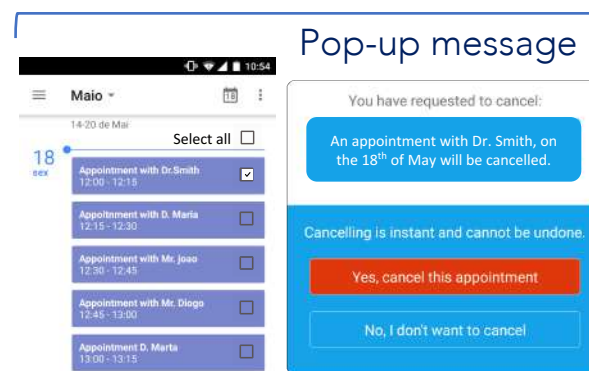
Inside the app



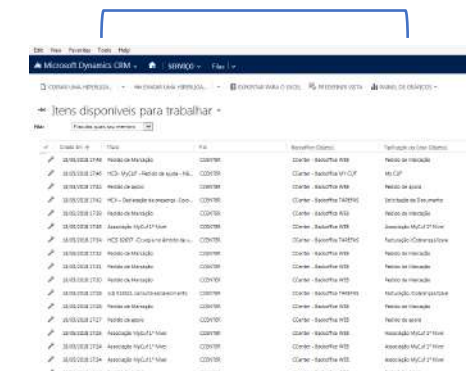
In the smartphone Agenda



Doctor’s smartphone



CRM Contact Center



APPENDIX 11 | 1.3. MYCUF PRO | A&U PLAN | qualitative research

The 7 in-depth interviewees to design MyCuf PRO are doctors from different areas of specialization, working at different units and with different responsibilities within these units

Isabel Domingues



Piedade Sande Lemos



David Paiva



Abel Abejas



Carlos Vaz



Bruno Santiago



Ricardo Girão



AREA OF SPECIALIZATION	Ophthalmology	Pediatrics	General Medicine	General Medicine	General Surgery	Neurosurgery	General Surgery
UNIT	CUF Torres Vedras	CUF Cascais	CUF Infante Santo	CUF Descobertas	CUF Infante Santo	CUF Infante Santo	CUF Infante Santo
RESPONSIBILITY	-	Clinical Director of CUF Cascais Hospital	HCIS Permanent Service Coordinator	-	-	-	HCIS Associate Coordinator of General Surgery Department

The order the doctors are presented correspond to the order by which they were interviewed

(Brief presentation of the team and the project without mentioning MyCuf PRO)

ENGAGING THE DOCTORS

1. Can you please tell us about your career path and relation with JMS?

UNDERSTANDING DOCTORS' "PAINS"

2. Please recall a typical working day. What administrative tasks do you perform from the beginning to the end of the day?
3. Of those tasks mentioned, which do you feel to be heavier and more difficult for you to perform?
4. Do you have any solutions in mind in order to overcome those difficulties?

WEB VS APP

5. If a platform was created in order to help performing some of those tasks in a more efficient way, would you prefer it in your computer or smartphone?

FEATURES EVALUATION

6. Please share with us your opinion on the following features to possibly be available in the platform:
 - **Appointment Schedule:** Possibility of viewing and managing the appointment schedule
 - **Holidays' Schedule:** Possibility of scheduling holidays through the p
 - **Operating Theatres' Schedule:** Possibility of checking the schedule of the operational room from outside the healthcare unit
 - **Expected Wage:** Possibility of having access to detailed fees to be received
 - **Communication with clients:** Directly or with contact centre as intermediate (?)
 - **Communication with other doctors:** Via text message for consulting purposes (second opinion or other area of expertise)
 - **Academia CUF:** Access to content provided by the Academia CUF
 - **Statistics of Activity:** Possibility of checking the number of appointments performed or canceled and the evolution at CUF (working years and other relevant data)

In-depth Interviews' Script (2/2)

UNDERSTANDING THE COMPETITION'S POSITIONING

7. Do you know any similar platform from other Portuguese healthcare providers capable of easing the administrative tasks mentioned at the beginning of this interview?

Any other suggestion?

Thank you for your time.

APPENDIX 12 | 1.3. MYCUF PRO | A&U PLAN | compensation methods (8/10)

The remuneration system will change: doctors will earn the current 70% all the scheduled appointments, and an extra 10% for every appointment given between the average number of appointments per doctor and the goal set.

1ST METHOD

An example will be used to help the understanding of the 1st method. The values are approximately to the real values but neither Doctor A, B C or D represent any doctor.

	Appointments in year 0	Canceled Appointments year 0	FTE	Average canceled apointment	% reduction	Goal year 1	Oportunity cost absorbed in year 1	Doctor Bonus	CUF
Doctor A	1000	140	1		30%	70	960	768	
Doctor B	2000	150	2		30%	140	1920	1536	
Doctor C	500	100	0,5		30%	35	480	384	
Doctor D	500	10	0,5		30%	35	480	384	
Total	4000	400	4	100	70	280	3840	3072	768

- A. Start by computing the number of FTEs assuming that 1 FTE performs X appointments per year.
- B. Compute the average number of canceled appointments per FTE and how much (%) CUF wants to reduce the canceled appointments.
- C. Compute the maximum number of appointments that an FTE can cancel in the next year and multiply that number by the percentage of FTE attributed to each doctor.
- D. $[(\%FTE \times \text{average canceled appointment}) - (\text{maximum number of canceled appointments per doctor})] \times 32 = \text{Opportunity cost absorbed}$
- E. Compute the doctor bonus by multiply the opportunity cost absorbed by 80%
- F. The total opportunity cost absorbed subtracted by the total bonus is the CUF profit

- A. 1 FTE = 1000 appointments
4 FTE in total
- B. 100 canceled appointments per FTE
Reduction for next year of 30%
- C. If FTE=1, the maximum number of canceled appointments is 70
- D. For doctor A: $(1 \times 100 - 70) \times 32 = 960$
- E. For doctor A: $960 \times 80\% = 768\text{€}$
- F. In the example the CUF profit is 768€

APPENDIX 12 | 1.3. MYCUF PRO | A&U PLAN | compensation methods (8/10)

The remuneration system will change: doctors will earn the current 70% all the scheduled appointments, and an extra 10% for every appointment given between the adjusted number of appointments given in the previous year of each doctor and the goal set.

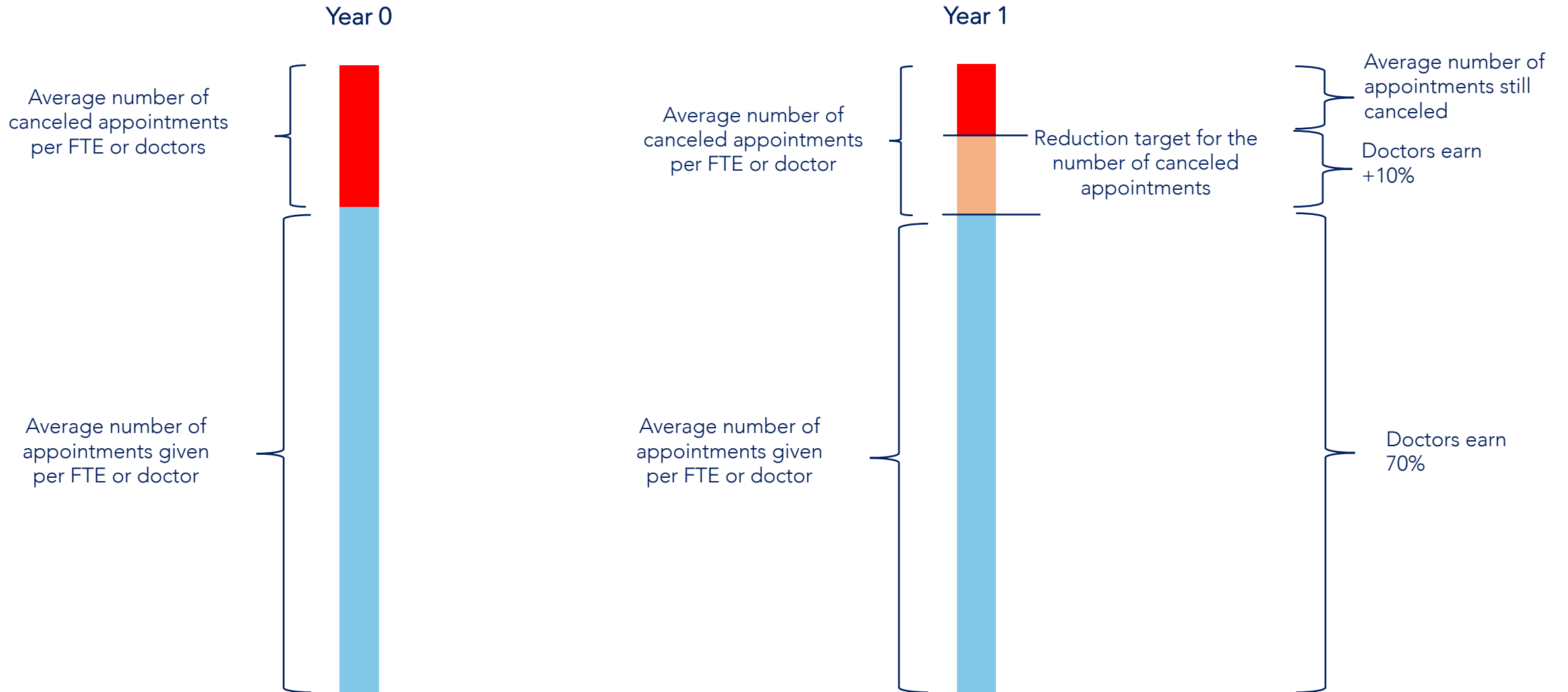
2ND METHOD

An example will be used to help the understanding of the 2nd method. The values are approximately to the real values but neither Doctor A, B C or D represent any doctor.

	Appointments in year 0	Canceled Appointments year 0	% of canceled appointments in year 0	% reduction	% canceled appointments in year 1 (target)	Prediction of appointments in year 1	Canceled appointments in year 1 (target)	Canceled appointments in year 1 using year 0 ratio	Opportunity cost of the reduction of canceled appointments	Doctor bonus	CUF
Doctor A	1 000	140	14%	30%	9,8%	1 100	107,8	154	1 478	1 182,72	295,68
Doctor B	2 000	150	7,5%		5,3%	2 500	131,25	187,5	1 800	1 440	360
Doctor C	500	100	20%		14%	400	56	80	768	614,40	153,60
Doctor D	500	10	2%		1,4%	500	7	10	96	76,80	19,20
Total	4 000	400	10%		7%	4 500	302,05	431,5	4 142,40	3 313,92	828,48

- Compute the percentage of canceled appointments in year 0 for each doctor.
- For each doctor, multiply the previous number, in A), by the target reduction of the canceled appointments, established by CUF.
- To know how many appointments doctors can cancel in year 1, multiply the number in B) by the number of appointments in year 1.
- Compute for year 1 the number of appointments doctor would cancel if they were to keep the same ratio of canceled appointment of year 0
- The opportunity cost absorbed will be the difference between the number in D) and the number in C) multiplied by 32.
- The number computed in E) will be 80% to doctor bonus and 20% to CUF

- For Doctor A: 14%
- If the reduction is 30%, for doctor A the target for year 1 is 9.8%
- Doctor A can cancel: $0.098 \times 1\ 100 = 107.8$ appointments
- For doctor A: $1\ 100 \times 0.14 = 154$
- For doctor A: $(154 - 107.8) \times 32 = 1\ 478.4$ €
- For doctor A: Bonus: 1182.72 € and CUF: 295.68 €





Contact Centre (1/3)

ASSUMPTIONS

- JMS provided the CC database (categorized by headlines) from the 1st trimester of 2018
- The database had information regarding the number of inbounds and average time per inbound
- With the help of a second database, "CRM cases to the unit" the group was able to discriminate 2 major items, "Information Request", and "Other CRM Cases". For this, it was assumed that the headings would have the same frequency distribution as the one in the provided "CRM cases to the unit".
- The second database did not included the average waiting times for each item, so it was assumed that the average call time would be equally distributed among the existent pre-categories
- Based on the values of the 1st trimester of 2018, we computed the Estimated Annual Values of 2018
- It was computed the average and total estimated time values for each category.
- Then, with the client, we checked which headings could be substituted by the usage of the current app (MyCuf AS IS) or by the MyCuf TO BE.
- To differentiate between number of appointments and exams in 2018, It was then assumed that this ratio would be the same as the ratio Appointments to Imaging Exams of 2017.
- With the Client, it was then assumed that the MyCuf AS IS , concerning the appointments, only covers 75% of the total Scheduled appointments, due to eligibility issues.

MyCuf AS IS	MyCuf TO BE		# Chamadas	TMA	Total	Valor Total Estimado	Impacto Estimado MyCuf Steady	Impacto Estimado MyCuf Nova Consulting
			# Chamadas Recebidas Estimadas Anual	Tempo Médio de Atendimento	Tempo Total Estimado			
!	✓	Marcação	1 136 992	306	347 718 856	708 666	395 167	708 666
		Questões Agenda	600 576	164	98 633 488	201 019,34	-	-
✓	✓	Remarcação	275 292	216	59 364 472	120 987	120 987,37	120 987
✓	✓	Confirmação de Marcação	135 000	141	18 987 456	38 697	38 697,26	38 697
✓	✓	Desistência de Marcação	189 392	106	20 040 488	40 843	40 843,39	40 843
✓	✓	Outros agendamentos [Agendamento]	892	270	241 072	491	491,32	491
		Pedido de Informação	1 011 052	243	245 457 600	500 253	-	-
✗	✗	Acordos	16 831	243	4 086 034	8 328	-	-
✓	✓	Confirmação de dados da ficha	3 074	243	746 274	1 521	1 520,94	1 521
✓	✓	Horários de funcionamento unidade/serviço	3 013	243	731 496	1 491	1 490,82	1 491
✗	✗	Internamento/Cirurgias	184 223	243	44 724 710	91 151	-	-
✗	✓	Localização	5 052	243	1 226 549	2 500	-	2 500
✓	✓	Médicos/ Especialidades / Exames	376 481	243	91 400 076	186 277	186 277,33	186 277
✗	✗	Outra	30	243	7 389	15	-	-
✗	✗	Preços	80 349	243	19 506 564	39 755	-	-
✗	✗	Preparações (duvidas)	30 952	243	7 514 461	15 315	-	-
✓	✓	Saber se o exame está pronto	307 972	243	74 767 774	152 380	152 379,97	152 380
✓	✓	Urgência / AP (TEMPO DE ESPERA???)	3 074	243	746 274	1 521	1 520,94	1 521
		Transferência de Chamada	111 636	250	27 948 564	56 960	-	-
✗	✓	Outros [Transferência de Chamada (às unidades, c	111 584	250	27 926 308	56 915	-	56 915
✗	✓	Pedido de Contacto Médico	52	428	22 256	45	-	45
✓	✓	Facturação	37 352	528	19 720 120	40 190	40 190	40 190
✗	✓	Pedido de marcação à unidade (Slots Extra)	29 376	511	15 020 340	30 612	-	30 612
		Outras Situações (CRM)	216 028	486	105 096 338	214 191	-	-
✗	✗	Agradecimentos	138	486	67 183	137	-	-
✓	✓	Alteração de dados	171	486	82 991	169	169,14	169
✗	✗	Comunicação de Atrasos	21 836	486	10 622 857	21 650	-	-
✗	✗	Confirmação por Lista de Espera	130	486	63 231	129	-	-
✗	✗	My CUF	7 209	486	3 507 361	7 148	-	-
✗	✗	Pedido de Apoio MyCuf + Informação	7 075	486	3 442 154	7 015	-	-
✗	✗	Problemas de Acesso	134	486	65 207	133	-	-
✗	✗	Reclamação	1 759	486	855 598	1 744	-	-
✓	✓	Solicitação de Documento (2ªVias, Prescrições)	127 467	486	62 012 116	126 383	126 383,39	126 383
✗	✗	Sugestões	16	486	7 904	16	-	-
✗	✗	Outros	57 302	486	27 877 997	56 815	-	-
✗	✗	Contacto de Assistente	5 751	486	2 797 985	5 702	-	-
✗	✗	Contacto Posterior	42 692	486	20 769 504	42 329	-	-
✗	✗	Médicos (Confirmação e Desmarcação)	475	486	231 189	471	-	-
✗	✗	Outra	6 052	486	2 944 207	6 000	-	-
✓	✓	Marcação Online	658	486	320 108	652	652	652
✗	✗	Manifestação de Interesse	45	486	21 736	44	-	-
✗	✗	Pedido de Apoio	1 629	486	792 367	1 615	-	-
		Erros/ Enganos / Fora do âmbito	203 000	221	44 771 411	91 246	-	-
✗	✗	Auto Wrap Up	90 632	295	26 692 627	54 401	-	-
✗	✗	Chamada Caiu	73 424	169	12 395 496	25 263	-	-
✗	✗	Incomplete Logging	18 248	252	4 599 096	9 373	-	-
✗	✗	Engano	17 592	34	604 772	1 233	-	-
✗	✗	Pedido de Informação Legionella	1 612	220	354 356	722	-	-
✗	✗	Desmarcação Legionella	408	225	91 716	187	-	-
✗	✗	Fora do Ambito	752	44	33 348	68	-	-
✗	✗	Queue Abandon	332	0	-	-	-	-
Total			3 346 012	270	904 366 717	€ 1 843 138,69	€ 1 106 771,72	€ 1 510 343,12

ASSUMPTIONS

10. It was assumed that there are no calls by clients with less than 20 years. The accounts for the clients with less than 16 years old are integrated in the parents' app (company policy), but as the team used the number of clients obtained in the segmentation, generation Z (until 20 years old) was excluded from the sample. This is a limitation for our estimation. The ideal scenario would be to have data from the C segmented by age.
11. Considering the previous information, in order to compute the benefits of each app per client, the total estimated value of each app was divided by the number of clients with more than 20 years (as mentioned before).- Estimated Value of each version of the app per client.
12. The estimated saving value for the app in the CC will be given by the product of MyCuf users per year and the estimated values per client.
13. It was assumed that the ratio "mycuf clients" to "accumulated mycuf clients" was the same as the ratio "Clients 2017" to "Accumulated CUF Clients" in 2017.
14. To compute the growth of MyCuf AS IS, data from the previous year was used and then it was assumed a decreasing of 50% per year until 2022 (steady state).
15. To compute the assumed growth rate of MyCuf AS IS, historical data was used and then it was assumed a decreasing of 50% on that same rate per year until 2022 (steady state). Such that, 32% of growth rate in 2018 will be followed by 16% of growth rate in 2019.
16. It was assumed that MyCuf TO BE will have 500 000 accounts in the end of 2018 and that the new features will only be available in the beginning of 2019. The growth was then assumed to decrease 50% each year until the steady state in 2022 (as the case for MyCuf AS IS) .
17. It was assumed that both versions in a steady state (2022) will grow at 1%. This will be the perpetual growth rate used
18. It was computed the average MyCuf Clients by year by computing the difference between the end value and beginning value of each year. This was the number used to compute the estimated impact of the year. This way the group will have a more accurate estimation of the estimated impact
19. The WACC to discount the cash flows was given by the company and was afterwards validated in the Damodaran dataset cost of capital for Healthcare Information Technology Industry.

APPENDIX 13 | 1. MEASURING IMPACT | estimated impact per client and service line (2/4)

Contact Centre (3/3)

ASSUMPTIONS

	2017	2018	2019	2020	2021	2022
Actual Accumulated Clients	1 469 163	1 589 633	1 719 981	1 861 017	1 937 317	2 016 746
Actual Clients (visitors)	810 395	876 846	948 747	1 026 543	1 068 630	1 112 444
Growth Rate Accumulated Clients	8%					
Growth Rate Actual Clients (Visitors)	8%					
Actual Clients (Visitors) to Accumulated Clients Ratio	,55 x	,55 x	,55 x	,55 x	,55 x	,55 x

Estimated Number of Per Generation	
Gen Z	175 603
Gen Y	174 485
Gen X	202 440
Gen BB	169 636
Silent Gen	65 485
Above Silent Gen	22 747

Estimated Number of Possible MyCUF Clients	634 792
Estimated Number of CC clients	634 792

My Cuf AS IS		2017	2018	2019	2020	2021	2022+
Estimated Impact	MyCuf Number of Accumulated Clients (End of the year)	310 000	408 792	473 930	511 688	532 071	534 732
	Average Number of Accumulated Clients	NA	359 396	441 361	492 809	521 880	533 401
	Growth Rate Accumulated Clients	NA	31,868%	15,93%	8%	4%	1%
	Estimated MyCuf Users	NA	198 244	243 456	271 835	287 870	294 226
	CC	NA	€ 345 642	€ 424 470	€ 473 949	€ 501 907	€ 512 988
	FO	NA	€ 481 826	€ 591 712	€ 660 687	€ 699 660	€ 715 107
	Total	NA	€ 827 468	€ 1 016 182	€ 1 134 636	€ 1 201 568	€ 1 228 096

My Cuf TO BE		2017	2018	2019	2020	2021	2022+
Estimated Impact	MyCuf Number of Accumulated Clients (End of the year)	310 000	500 000	653 226	753 317	783 450	787 367
	Average Number of Accumulated Clients	NA	405 000	576 613	703 271	768 383	785 408
	Growth Rate Accumulated Clients	NA	61,290%	30,65%	15%	4%	1%
	Estimated MyCuf Users	NA	223 399	318 062	387 927	423 843	433 234
	CC	NA	€ 389 501	€ 756 755	€ 922 983	€ 1 008 437	€ 1 030 781
	FO	NA	€ 542 965	€ 1 436 780	€ 1 752 383	€ 1 914 626	€ 1 957 048
	Total	NA	€ 932 466	€ 2 193 535	€ 2 675 366	€ 2 923 062	€ 2 987 828

ASSUMPTIONS

1. JMS provided the FO database (categorized by headlines) from the 1st trimester of 2018
2. The database had information regarding the number of tickets and average ticket time
3. Based on the values of the 1st trimester of 2018, we computed the Estimated Annual Values of 2018
4. Then, with the help of Marta Soares (Planning and Control Department), we organized the headings by categories (Schedule Appointment/ Exam; Check in; Payment; Collecting Exam; Others)
5. Here, it was assumed, with the advice of Marta Soares, that the ticket General Service belongs to the category Check- In
6. It was then divided which headings with the name Payment / Scheduling Appointment/ Exam belongs to which category (Payment or Scheduling Appointment/ Exam).
7. It was computed the average and total estimated time values for each category.
8. Then, with the client, we checked which headings could be substituted by the usage of the current app (MyCuf AS IS) or by the MyCuf TO BE.
9. It was then assumed that the ratio between Appointments and Exams for 2018 would be the same as the ratio Appointments/ Imaging Exams of 2017.
10. With the Client, it was then assumed that the MyCuf AS IS , concerning the appointments, only covers 75% of the total Scheduled appointments due to eligibility issues

APPENDIX 14 | 1. MEASURING IMPACT | estimated impact per client and service line (2/4)

Front Office (2/5)

ASSUMPTIONS

		2018				
MyCuf AS IS	MyCuf TO BE	Senhas	Tempo Total	Valor Total	Impacto Estimado MyCuf Steady	Impacto Estimado MyCuf Nova Consulting
		Marcações	462 432 008	837 739	-	-
	✔	Marcações	16 488 989	29 871	16 656,89	29 871
!	✔	Pagamento / Marcações	365 405 891	661 967	369 126,69	661 967
!	✔	Pagamento / Marcações	6 743 689	12 217	6 812,36	12 217
!	✔	Pagamento / Marcações	12 708 654	23 023	12 838,06	23 023
!	!	Pagamento / Marcações	48 001 107	86 959	48 489,88	86 959
!	!	Pagamento / Marcações	13 083 679	23 702	13 216,91	23 702

- ⊗ Cannot be substituted by the app
- ✔ Can be substituted by the app
- ! Can be partially substituted by the app

		2018				
MyCuf AS IS	MyCuf TO BE	Senhas	Tempo Total	Valor Total	Impacto Estimado MyCuf Steady	Impacto Estimado MyCuf Nova Consulting
		Check-In		-	-	-
⊗	✔	Atendimento Geral	463 813 861	840 243	-	840 243
		Admissão	24 307 482	44 035	-	-
⊗	✔	Admissão total	-	-	-	-
⊗	✔	Admissão Total	-	-	-	-
⊗	✔	Admissao	-	-	-	-
⊗	✔	Admissão	24 307 482	44 035	-	44 035
		Admissão Consultas	101 476 672	183 835	-	-
⊗	✔	Admissão de Consultas	6 877 167	12 459	-	12 459
⊗	✔	Atendimento	10 025 529	18 162	-	18 162
⊗	✔	Atendimento Consultas	39 039 243	70 723	-	70 723
⊗	✔	Consultas/Exames	27 650 707	50 092	-	50 092
⊗	✔	Atendimento Ginecologia/Obstetrícia	1 967 670	3 565	-	3 565
⊗	✔	Atendimento Pediátrico	21 097 047	38 219	-	38 219
⊗	✔	Atendimento Med. Dentária	1 696 476	3 073	-	3 073
		Exames e Análise Clínicas sem marcação	94 834 955,63	171 802	-	-
⊗	⊗	Análises Clínicas	13 278 123	24 055	-	-
⊗	⊗	Análises Clínicas	2 159 615	3 912	-	-
⊗	⊗	Atendimento Análises	29 792 998	53 973	-	-
⊗	⊗	Atendimento Exames Gastro	1 323 069	2 397	-	-
⊗	⊗	TAC / RMN - Ressonância	14 853 142	26 908	-	-
⊗	⊗	Exames Sem marcação	20 874 074	37 815	-	-
⊗	⊗	Exames neurofisiologia	56 392	102	-	-
⊗	⊗	Análises clínicas sem marcação	12 497 541	22 640	-	-
		Exames e Análises clínicas com marcação	101 874 654	184 556	-	-
⊗	✔	Análises clínicas com marcação	1 876 146	3 399	-	3 399
⊗	✔	Análises clínicas com marcação	1 148 829	2 081	-	2 081
⊗	✔	Atendimento Imagiologia	18 766 877	33 998	-	33 998
⊗	✔	Exames com Marcação	14 711	27	-	27
⊗	✔	Exames Marcados	16 637 525	30 140	-	30 140
⊗	✔	Consultas e Exames Marcados	57 213 568	103 648	-	103 648
⊗	✔	Admissão de Ecografias	3 449 880	6 250	-	6 250
⊗	✔	Atendimento Exames	2 767 118	5 013	-	5 013
		Admissão Ressonância	9 678 294	17 533	-	-
⊗	✔	Admissão Ressonância	8 540 874	15 473	-	15 473
⊗	✔	Admissão Ressonância Mag.	1 137 420	2 061	-	2 061

APPENDIX 14 | 1. MEASURING IMPACT | estimated impact per client and service line (2/4)

Front Office (3/5)

ASSUMPTIONS

MyCUF AS IS	MyCuf TO BE	2018				MyCUF AS IS	MyCuf TO BE	2018								
		Senhas	Tempo Total	Valor Total	Impacto Estimado MyCuf Steady			Impacto Estimado MyCuf Nova Consulting	Senhas	Tempo Total	Valor Total	Impacto Estimado MyCuf Steady	Impacto Estimado MyCuf Nova Consulting			
		Outros														
		Informações	41 362 446	74 932	-	-										
⊗	⊗	Informações	2 077 910	3 764	-	-	✓	✓	Checkin_Auto	6 602	12	11,96	-	-	12	-
⊗	⊗	Informações	14 520 935	26 306	-	-	✓	✓	Pagamento	19 672 479	35 639	35 638,55	-	-	35 639	-
⊗	⊗	Informações	1 040 483	1 885	-	-	✓	✓	Pagamento	5 600	10	10,14	-	-	10	-
⊗	⊗	Informações	13 755 587	24 920	-	-	✓	✓	Pagamento	8 042 226	14 569	14 569,25	-	-	14 569	-
⊗	⊗	Informações	9 967 532	18 057	-	-	✓	✓	Pagamento	18 121 152	32 828	32 828,17	-	-	32 828	-
		Total	2 319 905 129	€ 4 202 726,68	€ 1 542 843,30	€ 2 867 548,64	✓	✓	Pagamento / Checkin	7 822 054	14 170	14 170,39	-	-	14 170	-
							✓	✓	Pagamento / Checkin	6 632 713	12 016	12 015,79	-	-	12 016	-
							✓	✓	Pagamento / Checkin	2 835 202	5 136	5 136,23	-	-	5 136	-
							✓	✓	Pagamento / Check-In	2 003 656	3 630	3 629,81	-	-	3 630	-
							✓	✓	Pagamento / Check-In Automatico	142 848	259	258,78	-	-	259	-
							✓	✓	Pagamento / Check-in Electrónico	319 101	578	578,08	-	-	578	-
							✓	✓	Pagamentos / Marcações	596 604 400,79	1 080 805	-	-	-	-	-
							✓	✓	Pagamento / Marcações	10 674 083	19 337	19 337,11	-	-	19 337	-
							✓	✓	Pagamento / Marcações	15 895 260	28 796	28 795,76	-	-	28 796	-
							✓	✓	Pagamento / Marcações	282 864	512	512,43	-	-	512	-
							✓	✓	Pagamento / Marcações	10 974 675	19 882	19 881,66	-	-	19 882	-
							✓	✓	Pagamento / Marcações	77 468 942	140 342	140 342,29	-	-	140 342	-
							⊗	⊗	Pagamento / Marcações	35 365 557	64 068	64 068,04	-	-	64 068	-
							✓	✓	Transferências de unidades	112 369	204	-	-	-	-	-
							✓	✓	Urgência - Pagamentos	294 727	534	533,93	-	-	534	-
									Levantamentos			-	-	-	-	-
									Levantamento de Exames	115 895 297	209 955	-	-	-	-	-
							✓	✓	Entrega de Exames	9 209 147	16 683	16 683,24	-	-	16 683	-
							✓	✓	Levantamento de Documentos	1 349 377	2 445	2 444,52	-	-	2 445	-
							✓	✓	Levantamento de Exames	30 613 276	55 459	55 458,83	-	-	55 459	-
							✓	✓	Levantamento de Exames	19 934 454	36 113	36 113,14	-	-	36 113	-
							✓	✓	Levantamento de Exames	2 243 800	4 065	4 064,86	-	-	4 065	-
							✓	✓	Levantamento de Exames	25 019 119	45 324	498 569,39	-	-	45 324	-
							✓	✓	Levantamento Exames	1 114 156	2 018	22 202,39	-	-	2 018	-
							✓	✓	Levantamento Exames	26 411 968	47 848	47 847,77	-	-	47 848	-

⊗ Cannot be substituted by the app

✓ Can be substituted by the app

ASSUMPTIONS

11. It was assumed that there are no MyCuf Clients with less than 20 years. The accounts for the clients with less than 16 years old are integrated in the parents' app (company policy), but as the team used the number of clients obtained in the segmentation, generation Z (until 20 years old) was excluded from the sample. This is a limitation for our estimation. The ideal scenario would be to have data from the FO segmented by age.
12. Considering the previous information, in order to compute the benefits of each app per client, the total estimated impact value per app was divided by the number of clients with more than 20 years (as mentioned before).
13. The estimated saving value for the app in the Front Office will be given by the product of MyCuf users per year and the estimated values per client.
14. It was assumed that the ratio "mycuf clients" to "accumulated MyCuf clients" was the same as the ratio "Clients 2017" to "Accumulated CUF Clients" in 2017.
15. To compute the assumed growth rate of MyCuf AS IS, historical data was used and then it was assumed a decreasing of 50% on that same rate per year until 2022 (steady state). Such that, 32% of growth rate in 2018 will be followed by 16% of growth rate in 2019.
16. It was assumed that MyCuf TO BE will have 500 000 accounts in the end of 2018 and that the new features will only be available in the beginning of 2019. The growth was then assumed to decrease 50% each year until the steady state in 2022 (as the case for MyCuf AS IS).
17. It was assumed that both versions in a steady state (2022) will grow at 1%. This will be the perpetual growth rate used.
18. It was computed the average MyCuf Clients by year by computing the difference between the end value and beginning value of each year. This was the number used to compute the estimated impact of the year. This way the group will have a more accurate estimation of the estimated impact.
19. The WACC to discount the cash flows was given by the company and was afterwards validated in the Damodaran dataset cost of capital for Healthcare Information Technology Industry.

APPENDIX 14 | 1. MEASURING IMPACT | estimated impact per client and service line (2/4)

Front Office (5/5)

ASSUMPTIONS

	2017	2018	2019	2020	2021	2022
Actual Accumulated Clients	1 469 163	1 589 633	1 719 981	1 861 017	1 937 317	2 016 746
Actual Clients (visitors)	810 395	876 846	948 747	1 026 543	1 068 630	1 112 444
Growth Rate Accumulated Clients	8%					
Growth Rate Actual Clients (Visitors)	8%					
Actual Clients (Visitors) to Accumulated Clients Ratio	,55 x	,55 x	,55 x	,55 x	,55 x	,55 x

Estimated Number of Per Generation	
Gen Z	175 603
Gen Y	174 485
Gen X	202 440
Gen BB	169 636
Silent Gen	65 485
Above Silent Gen	22 747

Estimated Number of Possible MyCUF Clients	634 792
Estimated Number of CC clients	634 792

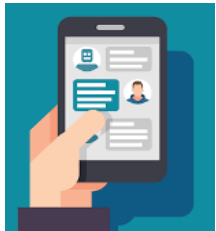
My Cuf AS IS		2017	2018	2019	2020	2021	2022+
Estimated Impact	MyCuf Number of Accumulated Clients (End of the year)	310 000	408 792	473 930	511 688	532 071	534 732
	Average Number of Accumulated Clients	NA	359 396	441 361	492 809	521 880	533 401
	Growth Rate Accumulated Clients	NA	31,868%	15,93%	8%	4%	1%
	Estimated MyCuf Users	NA	198 244	243 456	271 835	287 870	294 226
	CC	NA	€ 345 642	€ 424 470	€ 473 949	€ 501 907	€ 512 988
	FO	NA	€ 481 826	€ 591 712	€ 660 687	€ 699 660	€ 715 107
	Total	NA	€ 827 468	€ 1 016 182	€ 1 134 636	€ 1 201 568	€ 1 228 096

My Cuf TO BE		2017	2018	2019	2020	2021	2022+
Estimated Impact	MyCuf Number of Accumulated Clients (End of the year)	310 000	500 000	653 226	753 317	783 450	787 367
	Average Number of Accumulated Clients	NA	405 000	576 613	703 271	768 383	785 408
	Growth Rate Accumulated Clients	NA	61,290%	30,65%	15%	4%	1%
	Estimated MyCuf Users	NA	223 399	318 062	387 927	423 843	433 234
	CC	NA	€ 389 501	€ 756 755	€ 922 983	€ 1 008 437	€ 1 030 781
	FO	NA	€ 542 965	€ 1 436 780	€ 1 752 383	€ 1 914 626	€ 1 957 048
	Total	NA	€ 932 466	€ 2 193 535	€ 2 675 366	€ 2 923 062	€ 2 987 828

Artificial Intelligence (AI) is growingly becoming part of people's reality. The healthcare industry has been no exception and its players must develop their digital interfaces to incorporate AI's benefits. Additionally, Internet of Things (IoT) has a variety of application domains, including healthcare, and MyCuf can be part of an IoT network to improve customer experience, mitigate human errors and increase efficiency.

EXAMPLES

Artificial Intelligence (AI)



Algorithmic Solutions:

Introduction of known data into algorithms, so that computers can extract information and apply it to a certain problem.



Visual Tools:

Correspond to visual pattern recognition software that can store and compare images while using the same empirical techniques as humans. It is specially indicated for imaging related medical specialties.

Internet of Things (IoT)



Smart Beds:

Can detect the patient's movements and adjust the height accordingly so that there is no need of having any human intervention such as nurses.



Medication Dispensers:

Drug containers that can track if the medication was taken on time or not with the help of the data stored in the cloud.