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Implement an In-Store Technology at the Dolce Vita Pharmacy of *Grupo Reis Barata*

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Master in Applied Management

Supervisor:

Prof. Sofia Lopes Portela, Assistant Professor,
ISCTE Business School

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**BUSINESS
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“We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten. Don’t let yourself be lulled into inaction.”

Bill Gates, *The Road Ahead* (Penguin Books, New York, 1996)

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Resumo

O desenvolvimento massivo de tecnologias aliado ao confinamento fez com que o comportamento do consumidor mudasse. Para garantir a fidelização do cliente, as farmácias precisam repensar novas formas de melhorar a experiência do cliente na loja, a fim de captar e fidelizar o cliente.

O principal objetivo deste plano de negócios foi identificar qual a *In-store Technology* adequada à realidade do *Grupo Reis Barata*. Após consulta de mercado com empresas especializadas neste tipo de produtos e serviços foi selecionado o pick-up robot para ser implementado na *Farmácia Dolce Vita*. A partir da app do grupo, o cliente poderá fazer as suas compras na loja física sem se dirigir à caixa, apenas tem que fazer o seu pedido de compra na app, efetuar o pagamento online, e após inserção de código na zona de pick-up&go apenas tem que recolher a compra e sair da loja, sem ter contato com nenhum colaborador da loja.

Para garantir viabilidade do projeto foi realizado três *focus group* cada um composto por oito pessoas entre os 18 e os 60 anos, residentes na zona de Lisboa, literatos e *tech-friendly*.

A realidade das *In-store Technology* já está presente em outros setores, e com a experiência de outros players no mercado podemos replicá-la para o setor farmacêutico.

Palavras-chave: *In-store Technology*, Farmácia, Experiência do Cliente, Cliente

JEL Classification: Health: General (I10), Health: Other (I19)

Abstract

The massive development of technologies combined with confinement caused consumer behavior to change. To ensure customer loyalty, pharmacies need to rethink new ways to improve the in-store customer experience in order to capture and retain customers.

The main objective of this business plan was to identify which In-store Technology is suitable for *Grupo Reis Barata's* reality. After market consultation with companies specialized in this type of products and services, the pick-up robot was selected to be implemented at the *Dolce Vita Pharmacy*. From the group's app, the customer can make their purchases in the physical store without going to the cashier, they just have to place their purchase order in the app, make the online payment, and after entering the code in the pick-up&go area, just have to collect the purchase and leave the store, without having to make contact with any store employee.

To ensure the feasibility of the project, three focus groups were held, each consisting of eight people between the ages of 18 and 60, living in the Lisbon area, literate and tech-friendly.

The reality of In-store Technologies is already present in other sectors, and with the experience of other players in the market, we can replicate it for the pharmaceutical sector.

Key words: In-store Technology, Pharmacy, Customer Experience, Customer

JEL Classification: Health: General (I10), Health: Other (I19)

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Glossary

App - Mobile app

COVID-19- coronavirus disease

FLE - Frontline employee

HiCo-HiSo - High convenience and high social presence

HiCo-LoSo - High convenience and low social presence

IA - Artificial intelligence

KPIs - Key performance indicators

LoCo-HiSo - Low convenience and high social presence

LoCo-LoSo - Low convenience and low social presence

ML – Machine Learning

PPE - Personal protection equipment

PCPs - Primary care providers

1. Introduction

For several decades, pharmacy workforce planning has been relatively static. However, the health-care industry, like all others, is vulnerable to potentially disruptive technological changes (Spinks et al, 2017).

The rise of digital transformation has affected many industries as a result of the emergence of consumer technologies (Gregory et al., 2018), forcing traditional firms to rethink their strategies.

In-store technologies are already well developed in other sectors, giving the pharmacy sector an opportunity to learn from the mistakes and successes of these market players.

Thus, this business plan has the objective to develop a project which aims to bring digital transformation aligned with customer needs to reality with the creation of an in-store technology that allows customers to scan their products using the smartphone while shopping and checking out without using the physical counter.

To guarantee the success of this project it is necessary to focus on the digital transformation, with what has been done in other sectors and markets in this field, and in the current consumer behavior and needs. The focus group concluded that most participants believe this technology would add value to the pharmacy, on the other hand, most people would not travel outside to their area of residence or work to have access to it.

In this sense, this business plan intends to measure the financial success and customer oriented that an in-store technology would be, using *Farmácia Dolce Vita* as a model. After market consultation with IT companies specialized in this type of technology, the pick-robot was presented by *Quantico Solution* as a sustainable solution for *Grupo Reis Barata*. The project was valued by Quantico Solutions between 180,000€ to 200,000€, subject to change as a result of the current global situation. With this information and the results of the focus group, we can say that this project is a risky investment, because the non-adherence on the part of consumers may cause the company to not have a return on investment, or to reach breakeven.

In this regard, the business plan is structured in 7 chapters: Introduction, Literature Review, Methodology, Business Plan Analysis, 5. Business Plan and Business Plan Conclusion.

In the Introduction, the objective and relevance of this business plan for the pharmacy sector was analysed. In the Literature Review, a critical analysis of the literature on the subject was made, as well as studies that support the relevance of this project. The Research Methodology presents the techniques used to validate the importance and necessity of this transformation in the sector. In the 4th chapter, the Business Plan Analysis, an external and

internal analysis is conducted, complementing the research with a focus group. The Business Plan presents the best and sustainable technological and financial proposal for the company in order to respond to the proposed objectives. The Business Plan Conclusion chapter summarizes the project's conclusions and its contribution, as well as a critical analysis of the main limitations of the work presented.

2. Literature Review

The purpose of a literature review in a business plan is to offer extensive and comprehensive overview of the sectors that are the foundation of the project. This will allow to have a more prepare and mature plan to face the challenges that could arise in the course of the project.

To establish a successful project it is necessary to understand the human psychology and the costumer's behaviour beside focus only on the technology since it is necessary to comprehend if this project will mitigate an operational bottleneck and add value to the client experience.

2.1. Digital transformation

In 2020 the worldwide pandemic Covid-19 put pressure on the society and companies across public and private sectors to digitally transform themselves (Datta & Nwankpa, 2021).

Due to the emergence of consumer technologies (Gregory et al., 2018), the rise of digital transformation has affected many industries, forcing traditional firms to rethink their strategies. According to Mergel (2019), digital transformation and strategy processes in private and public sector have emerged over the last decade (Bharadwaj et al., 2013). As a result, consumers have gained access to a wide variety of media channels and have a fast-changing digital lifestyle (Lemon & Verhoef, 2016).

To drive the need for digital transformation three external factors were identified:

- First, since the advent of the World Wide Web and its widespread adoption, an increasing number of accompanying technologies have emerged, bolstering the development of e-commerce (Verhoef et al., 2021).
- Second, competition is changing dramatically because of these new digital technologies. Technologies have disrupted the retail competition landscape, shifting sales to relatively young digital firms. Not only competition has become more global, but it has also become more intense (Verhoef et al., 2021).
- Third, because of the digital revolution, consumer behavior is changing. Consumers are shifting their purchases to online stores, according to market data, and digital touchpoints play an important role in the customer journey, affecting both online and offline sales (Kannan, 2017).

Retail stores are exponentially increasing the use of technology by the consumer at the time of purchase (Gong et al., 2021). Thus, it is very important that the pharmacy sector follows this trend and adapts, providing a different experience to each customer inside the store (Deloitte, 2020).

Taking into consideration the information present, digital transformation should be considered a challenge that companies should face, not only as a competitive factor but also to establish and develop the relationship with the customer (Caputa, Paździor, Krawczyk-Sokołowska 2017).

2.2. Consumer behavior

The globalization aligned with digital transformation as create a more informed customer base with higher expectations. The contemporary costumer is becoming more demanding, complex, and volatile, and to guarantee the acceptance of an in-store technology system in the pharmaceutical sector, it is necessary to understand consumer behaviour (Kotler & Keller, 2012).

Every consumer has a different thought process and attitude towards a product or service, and by understanding how consumers decide it is possible to fill a gap in a market with the aim to achieve a blue ocean, as W. Chan Kim (2005) stated, "*instead of focusing on destroying competition, make it irrelevant by offering a leap in value and creating new market demand*".

With an increasing trend in the use of technology in our daily bases, and the willingness to share data, digital become the *new normal* in consumer behaviour, and even more after the Covid-19 pandemic (EY Global Services Ltd., 2020).

As Kotler and Keller (2013) defend, it is possible to affirm that consumer behaviour "*is influenced by cultural, social, and personal factors*":

1. Cultural factors: Culture and subculture are particularly important influences on consumer buying behaviour. This includes nationalities, religions, racial groups, and geographic regions that needs to be considered while studying costumers' behaviour.
2. Social factors: In addition to cultural factors, family, friends, education level, social media and statuses affect our buying behaviour.
3. Personal factors: personal interests, economic circumstances, personality and self-concept, and lifestyle and value have a direct impact on consumer behaviour, such as our demographics (age, gender, and others).

In nowadays it is impossible to talk about consumer behaviour without highlight how the lockdown and social distancing change consumers' choices. To help understand the effects of covid-19 on consumers' behaviour Sheth (2020) develop a chart to explain the stages.



Figure 1 - Eight immediate effects of Covid-19 pandemic on consumption and consumer behavior

In the beginning of the lockdown consumers start hoarding by stock essential products such as toilet paper, cleaning products or water resulting in temporary stockouts in the stores.

This is a common kind of reaction by consumers when the future of supply for basic needs is uncertain. In addition to hoarding, the appearance of a gray market here hoard products like PPE (personal protection equipment) increase price didn't help this behaviour.

The next stage, improvisation, shows the way consumers learn how to overcome constraints. The pandemic proves the resilience and creativity of consumers for such tradition activities as going to the church that start being via zoom call.

The third phase is related to pent-up demand. As the name implies, in times of crisis and uncertainty the consumption and purchase of goods or services is postponed which are often associated with higher value goods such as houses or cars.

Another shift in consumer behaviour has been digital technologies. The lockdown forced a greater contact with technologies, whether to follow friends and family through social media or zoom or to work remotely.

Due to this shift of consumer behaviour towards digital technologies the stores start to come home. Like education and work, goods and services have had to reinvent a form of delivery. This happens from streaming services to home delivery increasing convenience and personalization in consumer behaviour.

The phenomenon of *Blurring Work-Life Boundaries* began to occur when the obligation of stay at home occur. The limited space, plus activities such as working, socializing, and resting start to took place in the same space and individuals start to blur boundaries between

work and home or tasks and chats. To ensure this does not happen it is necessary, compartmentalization and schedules.

One of the great impacts of the pandemic was the distance between family and friends. It was necessary to change the way we communicate and thus give greater value to social networks such as *Zoom* and *WhatsApp*. It should be expected dramatic changes in consumer behaviour due to the faster universal adoption of new technologies accelerated by the lockdown.

To conclude the eight immediate effects of Covid-19 pandemic on consumption and consumer behaviour, one good thing this period brought was the possibility of discovering new talents. With greater freedom of time, consumers had the possibility to try new recipes, improve talents they already have or even discover new talents.

It is anticipated that most habits will return to normal but the lockdown and social distancing has generated significant disruptions on consumer behaviour. Embracing digital technology is likely to modify existing habits (Sheth, 2020).

2.3. Customer experience

In the very competitive sector such as the pharmaceutical sector, it is necessary to focus on a differentiation strategy, and one of the ways to achieve this goal is from customer experience.

To build well-thought-out customer experience it is necessary a customer-centric mindset and exhaustive planning. Requires a work across all business functions with these questions always in mind: what it means, why is it important, what are the best practices and how to improve customer experience (Patel, 2022).

The better the experience the customers have, the more likely they are to leave positive feedback and share it with their circle of friends, while also reducing the friction of customer complaints (Walker, 2020). As Walker (2020) stated “*customer experience will overtake price and product as the key brand differentiator in coming years.*”. The key benefits of an improved customer experience are the following:

- Increase customer satisfaction – When customers have a positive experience with a brand, their level of satisfaction rises. They spread positive word of mouth about their experiences both online and with friends and family;
- Reduce customer churn – A 5% increase in customer retention can boost profits by 25 percent to 95%. Businesses that focus on proactively answering customer questions through personalized conversations reduce churn and increase retention;

- Increase customer lifetime value – Companies that focus on reducing churn while delighting existing customers increase customer lifetime value. The longer customers keep buying from a company, the more value they can provide to the company over the course of the relationship.

A great customer experience is created when an organization is aligned around the single mission of delighting customers and when occurs across all customer touchpoints of a business interaction (Deloitte, 2016). It is necessary to invest in the training of employees on how to execute their tasks aligned with the organization culture. The key elements that promote a great customer experience are (Patel, 2022):

- It is critical to respond quickly: Acknowledging customer concerns on time and presenting effective solutions has a significant impact on providing an excellent customer experience;
- Good and effective communication skills: part of customer experience strategy results in an effective customer service experience;
- Omnichannel make a difference: businesses must make information easily and accessible through multiple channels such as websites and social media;
- Keep a personal touch: customer support representatives are essential to the experience. It is crucial to train employees to have meaningful interactions with consumers and to provide them the knowledge they need to make transitions between the online and in-person experiences.

To make our company stand out it is crucial to have a deep understanding of consumers' needs with the chance of turning their interest to loyalty. One of the starting points is creating a buyer persona, for that it is necessary to collect data of our customers and analyse. Some of the questions that must be asked when collecting this data are (Patel, 2022): who are my customers, what motivates them, what do they want to achieve and what are the fundamental points to reach satisfaction.

Thus, understanding your target audience and mapping customer journeys requires analytical effort but on the long term this information will help the organization design and implement a sustainable customer experience strategy.

Apart from a clear customer experience vision with a strong and well-trained team it's essential to invest in the right system and tools since digital transformation has create a much more informed customer base with higher expectations.

Companies all over the world are experimenting artificial intelligence (AI) such as machine learning and advanced analytics to improve the customer experience and to reduce operating costs. By automating many manual tasks, AI and analytics are producing significant improvements in quality and responsiveness (Wheless & Mithel, 2021) enhancing and reshaping customers experience landscape (Yi & Liu, 2020).

After all these points above have been address it is necessary to carry out an evaluation of the organization's performance. As Purcell (2018) stated *“Companies are increasingly using customer analytics techniques like customer satisfaction analysis, customer engagement analysis, and customer journey analytics to understand and enhance the client experience.”*

Measuring customer experience is critical for any organization. This will help determining how effectively your company is performing and how customers perceive products and services. For that most of companies have created key performance indicators (KPIs) to track customer experience.

To improve our indicators, it is necessary to measure costumer loyalty by for example send a customer satisfaction surveys to understand how they feel about the organization and based on the result, incorporate customer feedback for continuous improvement.



Figure 2 - Customer feedback loop (Patel, 2022)

Consolidated feedback orientate to customer experience strategy is critical since provides information about the customer experience with the organization being the best resource for improving and adjusting the company actions to clients' needs.

2.4. In-store Technology

The digital transformation allied to a more demanding customer, as analyze in chapters above, has demonstrated the importance that technological innovation can have for the success or failure of an organization (Munir, 2003).

A growing number of technologies are becoming available to retailers and service providers, with the potential to improve both their operations and customer experience.

The customer journey goes in tandem with the in-store experience (Lemon & Verhoef, 2016), Technologies can serve as important touch points to customers, as well as assist and improve performance of frontline employee (FLE).

In Figure 3 - In-store technology infusion (Lemon & Verhoef, 2016) it is possible to visualize how new technologies can focus on two dimensions from the consumer perspective - convenience and social presence, and how in-store technologies can impact the customer journey (Lemon & Verhoef, 2016).

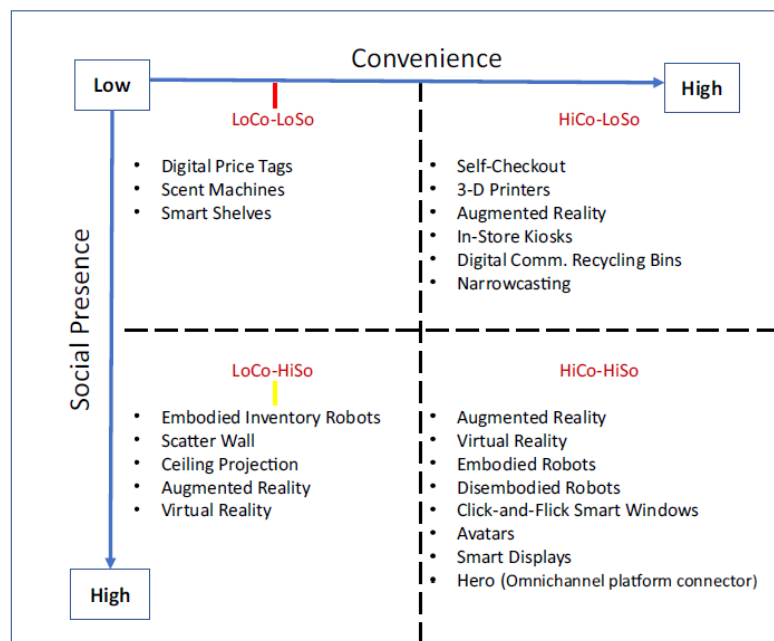


Figure 3 - In-store technology infusion (Lemon & Verhoef, 2016)

In the first dimension, convenience can be separate by five (Berry et al., 2002): decision, access, transaction, benefit, and post-benefit. Stated that:

- Convenience decision: the time and effort required to reach the make-or-buy decision;
- Access convenience: the resources required to request a service;
- Transaction convenience: payment-related tasks, such as entering credit or debit card information;
- Benefit convenience: required to experience the core benefit of the product or service;
- Post-benefit convenience: the time and effort needed by the customer if a consumer experience or need for more services fails.

The introduction of new technologies may have a distinct impact on each type of convenience. Consumers can now explore, shop, and evaluate their experiences in ways that were not previously possible (in-store or in an online environment).

The second dimension it is related to social presence. This happens when products or circumstances give the impression that a human being is present. For example, disembodied robots like Siri or Alexa can trigger social presence feelings since this technology can engage in two-way conversation (Berry et al., 2002).

Developing the principle of Figure 3 - In-store technology infusion (Lemon & Verhoef, 2016), technology can move across convenience and social presence dimensions being divided by four quadrants: low convenience and low social presence (LoCo-LoSo), high convenience and low social presence (HiCo-LoSo), low convenience and high social presence (LoCo-HiSo) and high convenience and high social presence (HiCo-HiSo).

Consider how each new technology relates to these dimensions, companies must determine which technologies should be introduced in their organization. As Grewall (2019) stated *“companies that embrace the opportunities and experiment with the technologies (...) are likely to be the most successful”*.

3. Methodology

To understand the need of this project it is necessary to specify the objective and relevance of this business plan and how the goal is going to be achieved.

The project aims to implement a in-store technology at the Dolce Vita pharmacy from the company *Grupo Reis Barata*. The objective is to assess in which way it is possible to create and implement a technology like this in a pharmacy, and what advantages that it will bring to the costumers and the company. This business plan would mark a position for *Grupo Reis Barata* in the pharmacy market in Portugal hence none have developed something similar.

After having contact with the company *Grupo Reis Barata* in a project that I had to develop for this master's I realize that this was a company that wanted to differentiate itself from the other pharmacies on the market and was not afraid to take risks. Since it was a project that would need space for the new technology, there was only the possibility of implementing it at the Dolce Vita pharmacy. This is a shopping center pharmacy with a large influx of customers which is the perfect environment to implement our project.

To support the value of the business plan it is necessary to understand the market. For that, beside analyse the pharmacy industry worldwide and in Portugal was conduct meetings with companies specializing in in-store technology and focus group. This focus group will be composed by three groups of eight people each and it was selected persons between 18 and 60 years from the area of greater Lisbon area, literate, and tech friendly. To guarantee the success of the business plan it was necessary to study and listen our potential customers and observe their behaviour before making decisions based on gut feeling.

4. Business Plan Analysis

To assess the relevance of the project it is necessary to conduct an external and internal analysis of the market. This will enable us to identify the opportunities and threats we are going to face.

To complement the analysis, a focus group was carried out in order to better understand the customer who will use the technology mitigating pre-made concepts.

4.1. External Analysis

For many decades, pharmacy workforce planning has been relatively static. However, health care, like all industries, is vulnerable to potentially disruptive technological changes (Spinks et al., 2017).

The pharmacy role in the healthcare ecosystem is evolving as disruptive technologies such as AI and virtual health began to gain ground. From automation to democratization of data these drivers are accelerating the rate of evolution so much that in 20 years healthcare delivery systems will be dramatically different (Deloitte, 2020). Clinical and technological advances are happening at an unprecedented rate, thanks to the power of AI, robotics, and data (Deloitte, 2020). This combination will allow to transition from *imprecision medicine* (Schork, 2015) to precision treatments.

Due to this technological revolution some impressive innovations are already happening, such as smart mirrors that use advanced cameras that to detect health variations (Engelking, 2016) or to manage glucose levels, researchers are using the gut microbiome to develop a food-as-medicine strategy (Viome, 2022).

Several pharmacies are operating on a static business model that only now are starting to adopt technologies and customer service innovation that other industries have embraced for years (Deloitte, 2020).

Currently, the pharmacist has an important role in the pharmacy, as is considered a reliable professional for customers, but as the use of technologies increases in the pharmaceutical industry, his function will start to have less activities, for example in a near future it will exist. robots dispensing medication to patients. On the other hand, this could be an opportunity for pharmacists, since in this way they can support physicians through disease state education, medical prescription or vaccine advice. The growing demand of physicians (Deloitte, 2020) associated with projections of people living longer create an opportunity for pharmacists expand their role, perhaps even to become the next generation of primary care providers (PCPs). As a result, three specialized paths are presented: digital, medical, and behavioural (Figure 4 - Pharmacists' evolving role (Deloitte, 2020)).



Figure 4 - Pharmacists' evolving role (Deloitte, 2020)

Currently in Portugal, pharmacies still play an important role as social agents in the health care system (Nunes et al., 2015), being this reality more more visible with the covid-19 pandemic in which pharmacies provided primary health care to individuals (Fernandes, 2020).

In this context and based on the projections of the future of pharmacies, it is necessary to adapt to the social and economic changes resulting from the pandemic combined with the growth of technologies, because only with this change it will be possible to retain and attract customers (Batista et al., 2020).

Health market research (HMR) shows that in June 2021 11.8% of non-prescription medicines were purchased in parapharmacies (Health market research, 2021). Furthermore, even though it is not legal in all countries, the sale of pharmaceuticals has been increasing after the lockdown, in the United States in 2019 already had a weight of 33.3% (Liu et al., 2020).

In this way, it is necessary to develop customer experience allied to technology in order to retain and attract customers to guarantees economic sustainability of a company.

4.2 Internal Analysis

Grupo Reis Barata is in a sector that is changing rapidly due to changes in consumer behavior allied with disruptive technological changes, making it necessary to adjust progressively the business with market trends in a sustainable manner.

The company was created in 2004 when acquired the group's first pharmacy in Almada called *Farmácia do Bairro*. Over the course of 16 years, *Grupo Reis Barata* acquire six more pharmacies, including *Farmácia Dolce Vita*, which will be the pilot pharmacy of the business

plan, *Farmácia Codivel*, *Farmácia das Avenidas*, *Farmácia Évora* and *Espaços Saúde Motta* and *HBA*, bringing the total number of pharmacies in the organization to seven.

The company's mission is to provide the best health solution to all its customers, focusing on the values of ethics, humanity and merit to achieve its vision of being the best group of pharmacies, the favorite of users, employees and partners. For this, *Grupo Reis Barata* offers extra services apart from pharmaceutical care, such as preparation of manipulated medicines or individualized preparation of weekly medication for its customers.

In 2018, to keep up with market trends, *Grupo Reis Barata* created the online store. This online store is supported by *Farmácia Dolce Vita*, as it is a shopping center pharmacy and has the necessary dimensions to guarantee the supply chain.

Grupo Reis Barata proved that is a company ahead of what is practiced in the area of pharmacies in Portugal by the development showed in 18 years. It is is one of the reasons why this company would be the ideal organization for a business plan of this nature.

4.3. SWOT Analysis

In this chapter the information collected from the external and internal analyzes will be interpreted using the SWOT analysis in order to understand the viability of an in-store technology solution adapted to the reality of the organization.

Through this analysis system it was possible to identify its Strengths, Weaknesses, Opportunities and Threats (Table 1).

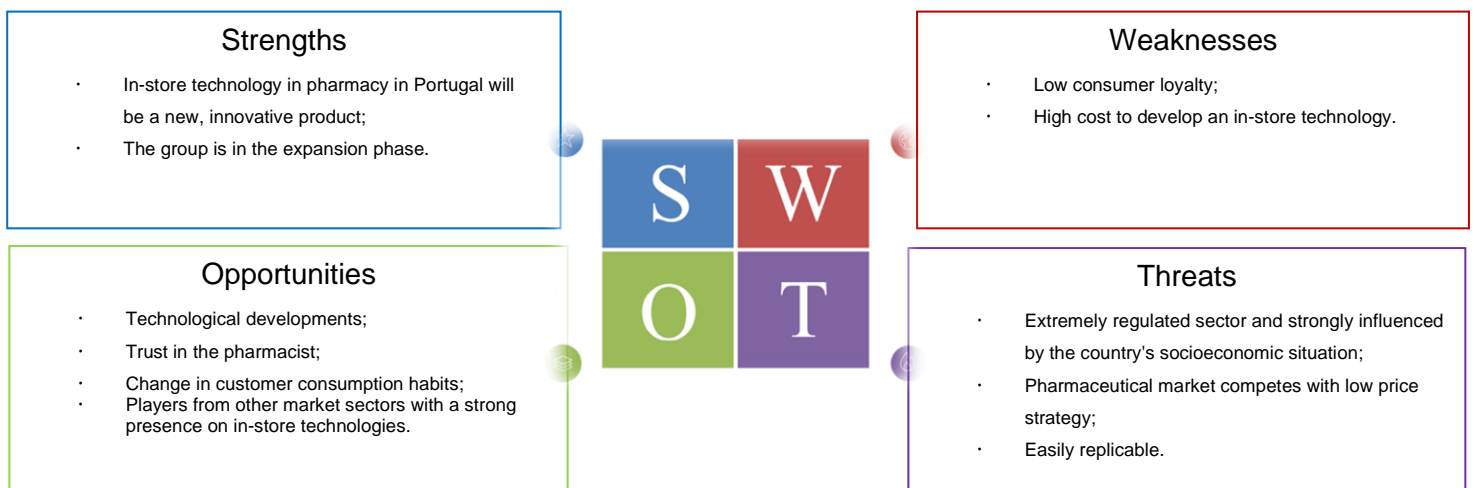


Table 1 - Grupo Reis Barata SWOT Analysis

The SWOT analysis in strength dimension reveals that the *Grupo Reis Barata* is in the process of expanding. The company has seven different points of sale and pharmacy types that work well together, and it has been investing in e-commerce since 2018. With these characteristics and the reality of in-store technologies in Portugal, the group would establish a market position.

In terms of weaknesses, a low customer loyalty combined with the high investment required to implement in-store technology stop the company from performing at its optimum level.

In terms of opportunities, in-store technologies are already well developed in other sectors, providing an opportunity to learn from the mistakes and successes of these players. Because of the technological development that other sectors have begun, consumer habits have begun to change, so it must be ensured that the company is evolving with society. And, because there is widespread trust in pharmacists, we should take advantage of this when implementing new services or products.

Finally, as discussed in previous chapters, threats show that this is an extremely regulated sector that is under great pressure and is influenced by the country's socioeconomic situation. With all of the competition in the sector, pharmacies compete with a low-price strategy, which becomes very volatile when you want to implement a system that requires a large investment. Even though it is a large investment, it must be remembered that it is a technology that will become increasingly easy to replicate, putting the company in an uncomfortable position in terms of cashflow, which has the potential to harm an organization.

4.4. Focus Group

To validate the relevance of the business plan it was necessary to conduct a focus group since it is an innovative project. As Stewart et al. (2007) stated *“Focus group may be useful in a research program, but they are particularly useful for exploratory research when rather little is known about the phenomenon of interest”*.

According to Bagnoli and Clark (2010), the focus group corresponds to a research technique that collects data through a group interaction with questions proposed by the interviewer. However, the intent of this method is not to direct participants through information or persuasion.

In this way, each focus group should consider five characteristics: the participants and their particularities, the guarantee of extracting qualitative data, a discussion focused on the objective and the understanding of the topic of interest (Krueger & Casey, 2009).

According to Ribeiro and Newmann (2010), there are several advantages of using this technique:

- Encourages participants to reflect on themselves, making them aware of their beliefs and attitudes mirrored in the behaviors and opinions of others;
- Investigate specific behaviors and motivations, facilitating the comparison between participants' views on a given topic;
- Help the researcher to understand and know the language and communication used by the population through the sharing of thoughts, experiences and values;
- Data collection is more efficient when information is provided through group dynamics.

Qualitative research can yield valuable information and generate new ideas when conducted with the target audience.

4.4.1 Participants' characteristics

The composition of the group and the number of focus groups that should be conducted are determined by the study's specifics and requirements. Participants should be selected in order to guarantee a certain level of homogeneity in each group, forming several groups with different characteristics from each other. Homogeneity not only allows for more fluent dialogue between participants, but it also facilitates analysis between different groups' perspectives and ensures that participants feel more comfortable and secure with each other. If the study is limited to a single group its legitimacy may be undermined (Morgan, 1997).

According to Krueger (2002), each focus group should have between five and ten participants, carefully chosen, similar to each other and with repeated groups of the same type.

The selection of participants for a focus group should, in most cases, obtain more specific and non-generalized samples. Focus group discussions should be conducted with participants chosen from a limited number of sources (usually only one), otherwise data collection will be limited. Generally, the participants do not know each other, allowing an environment of greater openness and freedom for them to express themselves (Morgan, 1997).

Based on this theoretical analysis, the participants that will be part of the focus group of this business plan are between the age of 18 to 60 years old, literate, technology oriented and from the area of Lisbon. This choice was based on information collected

Figure by *Grupo Reis Barata* about the customer profile that uses their webapp.

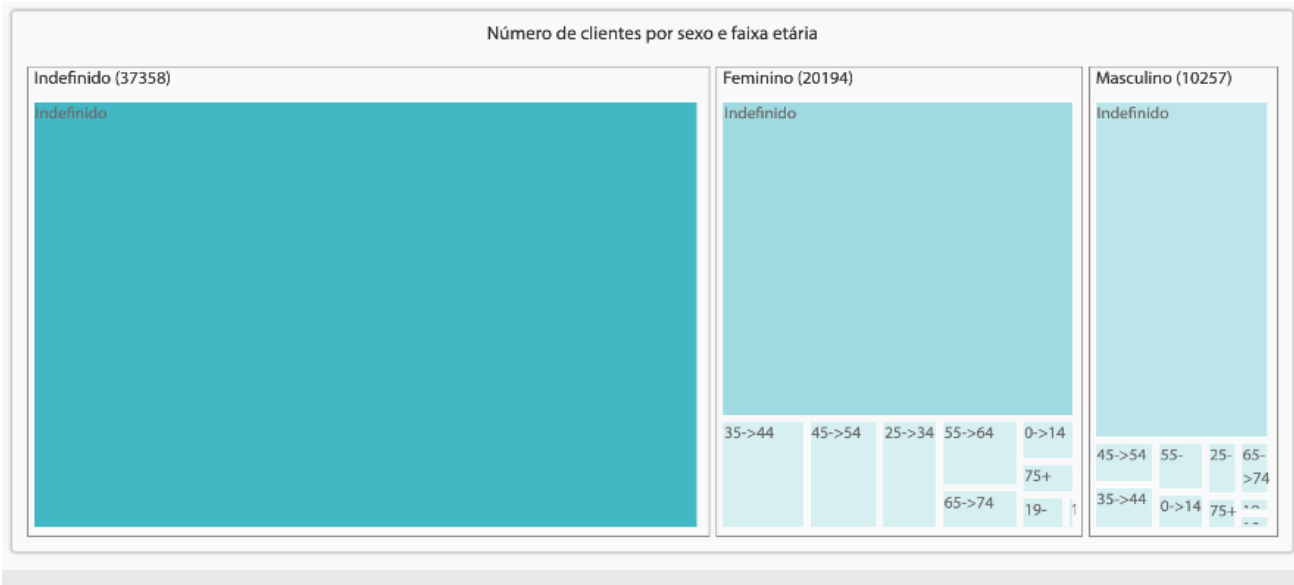


Figure 5 - Grupo Reis Barata customer profile on the webbapp

4.4.2. Interview script

According to Krueger (2002), the start of the focus group should be carried out in four steps:

- I. Welcome participants;
- II. Review the main topic of discussion;
- III. Explain the rules and how the discussion works;
- IV. Start of questions.

The first moments of the focus group are critical and essential to ensure success. Briefly, the moderator should create a thoughtful and permissive atmosphere, providing ground rules while setting the tone for the discussion. The initial questions should be more general, intended to promote dialogue, interaction and reflection on the main theme, naturally proceeding to more specific topics (Krueger, 2002).

All these questions will be part of a previously prepared questionnaire, which according to Krueger (2002), should meet the following characteristics:

- Use open questions

Examples: What do you think of...? ; What do you like most about...?

It is necessary to be cautious with questions like how satisfied..? or to what extent...?

- Avoid dichotomous questions as they run the risk of being answered with a "yes" or "no". Example: Do you think...?
- Avoid questions starting with "Why?" and replace with questioning of attributes and/or influences on something associated with the topic.
- Use questions that transport people to their experiences, memories and not the future.

- Use different types of questions throughout the discussion:
 - i. Opening/Introductory questions;
 - ii. Introductory questions;
 - iii. Transition issues;
 - iv. Key issues;
 - v. Final questions.

- Employ questions that involve the participants, combined with reflection, providing examples, placing choices, rating scales or drawing up.

Krueger (2002) also recommends avoid questions that imply the answers “yes”, “no” and “why?”, because of the risk of inciting a defensive reaction or putting pressure on the interviewees to rationalize their decisions. attitudes or behaviours.

The final questions, which the moderator asks, also have a fundamental role to play and with some fundamental rules:

- Make a general question: this question allows participants to reflect on the entire discussion and, in this way, to take a stand and give their opinion on the topic in general.

Example: Of all the things we discussed, which is the most important to you?

- Summary question: the moderator summarizes the topics covered, asking participants to fill in if they feel something is missing.
- Final question: the moderator reviews the purpose of the discussion, and asks the participants: Do you think something is missing?

4.4.3. Focus group execution

The focus groups were conducted having the below script Table 2, here 24 persons with the profile request were divided in three groups of eight participants each. All focus groups were led with the following characteristics:

- Dates: Between the 21st and 22nd of June 2020;
- Day of the week: Focus groups were held on Monday and Tuesday;
- Times: In the first day, the two focus groups were held between 10 am and 11:30 am, and in the second day the last group was between 10 am and 10:45am;
- Location: Zoom call;
- Average duration: 45 minutes;
- Recording method: All focus groups were audio and video recorded via Zoom call.

Category	Question/Speech
<p>1.Pre-discussion</p>	<p>Welcome, background and instructions</p> <p><i>“Good afternoon and welcome to our session. I want to thank you for joining us to talk a little bit about the future of technologies in physical stores. My name is Adriana and I study at ISCTE. At this moment I want to understand what you and other people like you think about this topic. You were invited because, despite different age groups, you have something in common, and that is the day-to-day use of technologies. There are no wrong answers, but different opinions. Please feel free to say what you think, even if it is different from what has already been said. I'm just as interested in the bad comments as I am in the good comments. Before we start I would like to ask if you are comfortable recording the session for further analysis.”</i></p>
<p>2.Consumption</p>	<p>Opening</p> <ol style="list-style-type: none"> 1. Do you usually go to physical stores? 2. How many times a week do you usually go? 3. Which physical stores category do you usually visit?
<p>3.Pharmacy</p>	<ol style="list-style-type: none"> 4.How often do go to a physical pharmacy? 5. How is your perception of waiting time in a physical pharmacy? 6. If the pharmacy near your area of residence had an automatic payment system in which it was not necessary to go to the cashier, that service would that bring more value? 7. How you download an app to your cell phone to have this service? 8. If this service was in a pharmacy in Lisbon, far from your area of residence, would you travel there to have this service?
<p>4.Summary and Acknowledgment</p>	<p>9. Do you think something is missing? And would you like to add something to what we talked about?</p> <p><i>“I would like to thank you all for helping me in this work, I hope you enjoyed it and I hope you have a great day”</i></p>

Table 2 - Focus Group Script

4.4.4. Results analysis and conclusion

In this chapter the results of the study carried out to the focus groups will be presented.

In order to carry out this study, a content analysis of the totality of responses and reactions of the participants of the three focus groups was used, based on the aforementioned questions.

Category	Responses/Excerpts
<p>2.Consumption</p>	<p>Opening</p> <p>1. Do you usually go to physical stores?</p> <p>Group 1 – 88% respond yes, only one person normally does online shopping Group 2 – 100% respond yes Group 3 – 63% respond yes</p> <p>2. How many times a week do you usually go?</p> <p>From the sample that answered yes to the previous question: Group 1 – 75% goes at least one time per week and 25% twice a week Group 2 – 100% goes twice a week Group 3 – 88% goes at least one time per week and 12% three times per week</p> <p>3. Which physical stores category do you usually visit? All the groups respond mainly supermarkets and retail stores</p>
<p>3.Pharmacy</p>	<p>4.How often do go to a physical pharmacy?</p> <p>Group 1 – 75% respond that goes at least one to three times per month and 25% have someone in the family or partner that go instead of them Group 2 – 88% respond that goes at least two in two weeks Group 3 – only one person of the group goes at least two in two weeks to a physical pharmacy, the rest of the elements of the group have family or partner that go instead of them</p> <p>5. How is your perception of waiting time in a physical pharmacy?</p> <p>Group 1 – “I can not complain, near to my house it is fast”; “Near to my house is fast, but when going to shopping the waiting time sometimes it is too long” Group 2 – “Depends of the time I have available” Group 3 – “Only have to wait too much if older people are in the store, at these times sometimes I come back later or on another day”</p> <p>6. If the pharmacy near your area of residence had an automatic payment system in which it was not necessary to go to the cashier, that service would that bring more value?</p> <p>Group 1 – “Yes, it would bring value”; “Depend on the product that I would need” Group 2 – “Yes, but I’m not very good with those things” Group 3 – “Yes, but I don’t know if many people would use. Most of the people that go to a pharmacy are older”</p> <p>7. How you download an app to your cell phone to have this service?</p> <p>Group 1 – 88% respond yes Group 2 – 25% respond yes but 75% said no Group 3 – 63% respond yes</p> <p>8. If this service was in a pharmacy in Lisbon, far from your area of residence, would you travel there to have this service?</p> <p>Group 1 – “No, only if it was to try one time” Group 2 – “No, I prefer to go to a pharmacy near to my area of residence or job” Group 3 – “If I’m passing by”; “If it is not to far away yes”</p>

<p>4.Summary and Acknowledgment</p>	<p>9. Do you think something is missing? And would you like to add something to what we talked about?</p> <p>Group 1 – The group asked more information’s about the business plan and gave examples of in-store technologies that they used and had a good experience Group 2 – The group didn’t want to add any information or opinion regarding the topics discuss; Group 3 – The group asked more information’s about the business plan</p> <p><i>“I would like to thank you all for helping me in this work, I hope you enjoyed it and I hope you have a great day”</i></p>
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Table 3 - Focus Group responses

After analyzing the responses of the three focus groups Table 3, we can conclude that most individuals go to physical stores at least once a week and visit pharmacies at least twice a month.

All individuals had good experiences in pharmacies, highlighting once again the positive image that pharmacists have in society, but there were some elements that complained about the waiting time when elderly people are in the store.

Most individuals believe that an in-store technology would bring added value to the pharmacy in their area of residence or work, but most of them would not purposely travel to have this service, only if they were going to try it once.

Of the three groups, group 2 was the least interested in expressing its opinion in the focus group, while the other groups were very participative at the end, asking questions about the business plan and telling their experiences with in-store technologies. in other sectors.

5. Business Plan

This business plan aims to show that it is possible to implement a technology that besides to differentiating from the competitors manages to develop the performance of the business and improve image for the customer but taking into account of making an investment according to the financial capabilities of the company.

The primary objective apart from differentiation deals with profitability. Considering that the company *Farmácias Reis Barata* it is a small medium business is necessary to choose a sustainable technology.

Farmácias Reis Barata after implement the technology that will be explain in the course of this chapter it will need to quickly reach an excellent brand recognition to guarantee a positive cash flow. For that, it will be design a marketing plan to anticipate decisions, reactions and managing risks.

5.1. Technology Plan

To ensure the most suitable solution for the company's reality it was necessary to consult the market and the new trends. After contacting several companies specialized in the area only *Quantico Solutions* was open to support in this process.

Quantico Solutions is a Portuguese company that develops technological solutions in sectors such as health, energy, or financial institutions. The company dedicated itself to hardware and software engineering. This commitment has made them won numerous awards in terms of innovation, such as the 2021 IoT Challenge with a technology related to artificial intelligence that they developed for Vision4Lab. This technology had the aim to increase the safety in hospital pharmacies, therefore *Quantico Solutions* was the ideal partner for this project.

In the meetings with the company *Quantico Solutions*, several options were presented but one that was defined that had to be developed was the *Farmácias Reis Barata* app, since this will be attached to the technology that will be selected at the end.

To reduce the cost *Quantico Solutions* propose to use the webapp that the company had already developed.

To create the app, *Quantico Solutions* suggest the technology React Native. This is a framework based on React developed by Facebook that allows the development of mobile applications, both for Android and iOS, using only JavaScript.

This framework has the advantages of being able to create a cross-platform applications, instead of building two different apps for Android and iOS. This means reducing the development cost by about 50%. Aside from that, the users have difficulty to differentiate

native from React Native applications due to their similarity in appearance since JavaScript interacts perfectly in the native environment.

On the other hand, there may be challenges in terms of performance and updates since it will not be possible to have the last native version available straightaway in React Native.

The app that will be developed for *Farmácias Reis Barata*, as previous mentioned, will be adapted from the webapp that already exists here the customer apart from the information that they already have access they will be capable to access the online store and leave the physical store with the products. The idea is after the customers select the products that they want in the app they will finalize the purchase by electronic payment and leave the store with their products.

For that to be possible it was necessary to select a technology capable of giving that experience to the customer while being sustainable for the financial health of the company.

The first idea was a machine learning technology. A ML is a type of artificial intelligence that allows software applications to predict outcomes without being programmed to do. Machine learning algorithms use historical data as input to predict all possibilities. This technology could be used to predict customers behavior to create a system that allow customers to grab their products and leave the pharmacy without having the need to go to the cashier. We have this example of technology with Amazon in United States of America and with Sonae MC in Portugal.

ML technology can help understand customers at a deeper level by collecting data and correlating with behaviors. This helps the company to tailor product development and marketing initiatives oriented towards customer satisfaction. However, as it was seen with the example of Sonae MC in Portugal the cost to acquire a technology very high, the company had to make an investment superior a one million euros (Bourbon, 2021). On top of that, after the purchase of a ML it will be necessary a constant investment for maintenance and repair. This would not be a sustainable investment for a company with the dimension of *Farmácias Reis Barata*.

After having to put aside the idea of creating a machine learning technology for the pharmacy, *Quantico Solutions* a new idea: a pick-up robot technology.



Figure 6 - Pick-up robot 3D prototype

Pick-up robot is a automated solution to lift objects from one locations and placing them at other area. Simple tasks such as lifting objects or moving them do not require a lot of thought, therefore using human workers on these tasks can be redundant, as the workforce can be used for tasks that require higher mental abilities.

The robot propose by Quantico Solutions will be set on a stable stand and will have a long arm that can reach the entire area of operation. The end of the arm attachment will be built to the type of products that will be sell in the pharmacy, as we can see in the above images.

Given the area in which the pick-up robot will be operate in the store, which, it will only be necessary to purchase one robot. This technology will be synchronized with the BackOffice and will pick the products and transport them to the pick-up&go area. To conclude, the customer will need to insert the code of his purchase to pick-up the shopping bag and leave the store.



Figure 7 - Farmácia Dolce Vita plant with the location of the in-store technology.

The pick-up robot, in order to have more visibility and sustainable in terms of organization of the store space, would be installed in front of the store. This area will be fenced by a glass wall so that the space is more harmonious with the two spaces of the pharmacy coexisting without a visual block that would be a typical wall.

The entrance and exit of the store would continue to be carried out in the same way, since there are 2 entrances and 2 exits. Two would be for the traditional pharmacy, and the other two for the pay&go system (Figure 7).

The robot server will be set in the pharmacy's BackOffice, which will be essential for controlling the equipment and managing the store (local and in the cloud).

This technology will help the company achieve the aim of this project. The speed and productivity of the operation will increase, the pharmacy will have a differentiated product to offer to its customers, will increase the safety at work of the company employees and brings consistency to the operation since robot will work on exact mathematical principles setting aside the factor of human error.

According to *Quantico Solutions* by eliminating the need to pay at the counter and ensuring a quick checkout with the smartphone the customer reduces, on average, their waiting time at checkout from 11 minutes to 30 seconds.

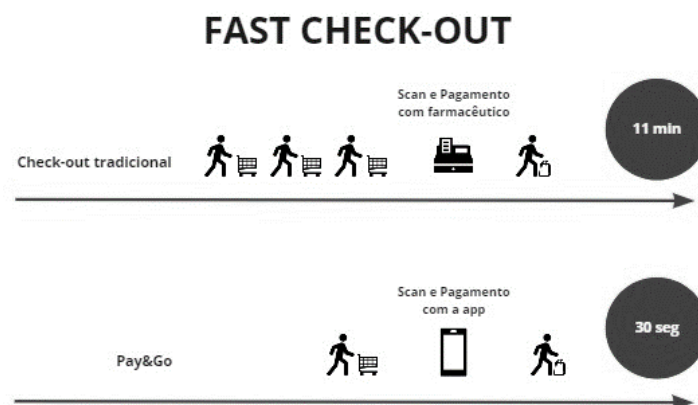


Figure 85 - Advantages of in-store technology Source: Quantico Solutions

On the other hand, this could lead to potential job lost since a robot can perform at a faster and more consistent rate. Furthermore, it will be necessary an initial investment that needs to be sustainable for the financial health of the company.

5.2. Budget

In this chapter it will be address the initial investment that would be necessary to proceed with the project.

The lack of responses from the IT companies that develop these projects made obtaining a budget for this business plan difficult. Because *Quantico Solutions* was the only company willing to support this process, there were no other proposals to compare.

When presenting the proposal, *Quantico Solutions* warned of price fluctuations in the market. Due to the atypical times, the pandemic and the war in Ukraine, having an exact budget was challenge as result of the electronics market crisis namely semiconductor to build the pick-up robot technology. This scarcity of components may increase or decrease the final offer depending on when the system is implemented.

Technology	Description	Price (€)
App Native React	<ul style="list-style-type: none"> - Use of the existing webapp as base; - Online store program to electronic payment; - Select in-store the product - Send the shopping card request to the automation server to be collected by the customer 	60.000€
BackOffice Server	<ul style="list-style-type: none"> - Store content manager (add/delete/edit products) - Hardware set for equipment control and store management (local and cloud) - Pickup store stock manager - Robot calibrator - Robot route manager 	50.000€
Pick-up robot	<ul style="list-style-type: none"> - Robot synchronized with BackOffice - Picking of products and transport to the collection area - Management of shelves and installation of data network and guidance system for the robot 	70.000€ to 90.000€
Total		180.000€ to 200.000€

Table 4 - Financial offer present by Quantico Solutions

To get a proposal closer to reality, it would be needed extra information, but in this case *Quantico Solutions* had to charge consultancy work. The following steps would be to conduct technical planning, which would include:

- Analyze all products to be sold
- Agree the workflow from online sales to collection
- Agree the stock replenishment flow
- Design the robot's working architecture (shelves, positions, dimensions, etc.)
- Design installation plan and guidance instruments for robotics.
- Map the workspace and make 3D simulations.

6. Conclusion

This project aims to implement an In-store Technology at the Dolce Vita Pharmacy.

An internal and external analysis was assessed to evaluate the feasibility and need for a business plan like this. With this analysis it was possible to conclude that the future of pharmacy passes through the new technologies and the customer experience. Without these two strategies implemented, in the very near future, organizations that do not follow this advance will struggle to succeed.

Those analyzes enabled us to make a SWOT analysis which highlighted the strength and opportunities of the project. As previously stated, *Grupo Reis Barata* has made economic, organizational, and technological investments in the company's growth process. With the investment in e-commerce in 2018, the company demonstrated how prepared and open it is to the new reality that is the disruption of technologies in pharmacies, making it the ideal time to bet on in-store technology, adapted to the company's financial reality, as there have been major developments in this and other sectors.

On the other hand, the company must consider the high investment required for the implementation of these types of technologies, as well as the possibility of customer non-adherence.

To validate the information collected, a focus group was handled. In this group dynamic, we can conclude that most participants believe this technology would add value to the pharmacy, on the other hand, most people would not travel outside to their area of residence or work to have access to it.

To finalize the business plan, a technological and budget was developed. The initial idea was to create a machine learning system, but after market consultation this idea had to be put aside, as the project started at 1 million euros, which was neither viable nor sustainable for a company of this size. The selected technology was a pick-up robot. This robot receives the customer's purchase order from the pharmacy's app, and after payment, places the items in the collection area, which can only be opened after the customer enters the code that the app generated for that purchase.

This project was valued by *Quantico Solutions* between 180,000€ to 200,000€, subject to changes due to the current situation in the world. With this, we can conclude based on the information collected from the group dynamics combined with the high investments that the company would have to make that this is a risky investment, as the company may not be able to reach breakeven.

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