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Innovative Business Plan: Artificial Intelligence in the Condominium Management Sector

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Master in Finance

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BUSINESS
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Resumo

O sector da Gestão de Condomínios em Portugal tem um potencial significativo, dado que cerca de 50% da população portuguesa reside em edifícios com propriedade horizontal, em que os indivíduos possuem unidades separadas e partilham as áreas comuns do edifício.

Apesar deste potencial, alguns estudos e investigações revelaram que a atual experiência do cliente neste sector é notoriamente fraca. As principais deficiências desta atividade incluem uma comunicação e uma transparência inadequadas entre os clientes e as empresas, bem como práticas ineficientes de gestão dos edifícios. Os gestores estão sobrecarregados com tarefas repetitivas e individuais e com uma multiplicidade de responsabilidades, o que prejudica a sua capacidade de gerir eficazmente os edifícios e de resolver os problemas de forma eficiente.

Esta tese de mestrado visa desenvolver um plano de negócios para avaliar a viabilidade económica do desenvolvimento de uma empresa inovadora de gestão de condomínios. O objetivo é revolucionar o sector, tirando partido da tecnologia e da Inteligência Artificial para melhorar os processos de gestão e potenciar a comunicação entre os intervenientes. Ao automatizar as operações e racionalizar as interações com os clientes, esta empresa procura aliviar a carga de trabalho dos gestores, aumentando assim a eficiência global e a satisfação dos clientes.

O plano de negócios será desenvolvido ao longo de 5 anos e, de acordo com a análise económico-financeira, o projeto tem um Valor Atual Líquido de 321,749€ e uma Taxa Interna de Retorno de cerca de 90%, revelando-se um negócio rentável e sustentável, com alguma margem de erro para fazer face a eventuais imprevistos ou variações de mercado.

Palavras-chave: Setor dos condomínios; Inteligência Artificial; Tecnologia; Inovação; Plano de negócios; Start-up.

Códigos de classificação JEL: (M13) - Start-ups; (Q55) - Inovação Tecnológica; (Z0) - Geral.

Abstract

The Condominium Management sector in Portugal holds significant potential, given that approximately 50% of the portuguese population resides in buildings with horizontal property ownership, where individuals own separate units and share common areas of the building.

Despite this potential, some studies and research have revealed that the current customer experience in this sector is notably poor. The main shortcomings of this activity include inadequate communication and transparency between customers and management companies, along with inefficient building management practices. Managers are overloaded with repetitive, individual tasks and a multitude of responsibilities, which impairs their ability to manage buildings effectively and solve problems efficiently.

This master thesis aims to develop a business plan to assess the economic viability of developing an innovative Condominium Management company. The goal is to revolutionize the sector by leveraging technology and Artificial Intelligence to improve management processes and enhance communication between stakeholders. By automating operations and rationalising interactions with customers, the goal is to lighten the workload of managers, thereby increasing overall efficiency and customer satisfaction.

The business plan will be developed over 5 years and according to the economic and financial analysis, the project has a Net Present Value of 321,749€ and an Internal Rate of Return of around 90%, proving to be a profitable and sustainable business, with some margin for error to deal with any unforeseen events or market variations.

Keywords: Condominium sector; Artificial Intelligence; Technology; Innovation; Business plan; Start-up.

JEL classification codes: (M13) – Start-ups; (Q55) – Technological Innovation; (Z0) – General.

General Index

Glossary

$\boldsymbol{R_d}$ – Cost of Debt

$\boldsymbol{R_e}$ – Cost of Equity

$\boldsymbol{R_f}$ – Risk Free Rate

$\boldsymbol{\beta_L}$ – Beta Levered

$\boldsymbol{\beta_U}$ – Beta Unlevered

€ - Euros

AI - Artificial Intelligence

AP – Accounts Payables

APEGAC - Association of Condominium Management and Administration Companies

API - Application Programming Interface

AR – Accounts Receivables

B2B – Business to Business

B2C – Business to Consumer

CAPEX – Capital Expenditure

CAPM – Capital Asset Pricing Model

CMVMC - Cost of Goods Sold and Materials Consumed

CRM – Customer Relationship Management

DCF – Discounted Cash Flow

D – Debt

E – Equity

EBIT - Earnings Before Interest and Taxes

EBITDA - Earnings Before Interest, Taxes, Depreciation, and Amortization

EBT – Earnings Before Taxes

ECB – European Central Bank

EEA - European Economic Area

EIS - European Innovation Scoreboard

ESS – External Supplies and Services

EU - European Union

EV – Enterprise Value

FCF – Free Cash Flow

FCFF – Free Cash Flow to the Firm

GDP – Gross Domestic Product

GDPR - General Data Protection Regulation

GM - Gross Margin

GMB – Google My Business

IC – Invested Capital

ICT – Information and Communication Technology

IoT – Internet of Things

IRR – Internal Rate of Return

IT – Information Technology

KPI – Key Performance Indicator

MVP – Minimum Viable Product

NI – Net Income

NIS - National Innovation System

NOPLAT - Net Operating Profit Less Adjusted Taxes

NPV – Net Present Value

OCED - Office of Community Economic Development

PP – Payback Period

ROA – Return on Assets

R&D – Research and Development

ROE – Return on Equity

ROIC – Return on Invested Capital

ROS – Return on Sales

RS – Risk Spread

SWOT – Strengths, Weaknesses, Opportunities, Threats

UNECE - United Nations Economic Commission for Europe

VAT – Value Added Tax

WACC – Weighted Average Cost of Capital

WC – Working Capital

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1. Introduction

The Condominium Management (CM) sector in Portugal emerged mainly at the end of the 1970s and currently has a significant impact on urban areas, where practically the entire portuguese and european population resides. Presently, there are approximately 300,000 condominiums in Portugal, housing around 5 million people.

According to the United Nations Economic Commission for Europe (UNECE), advancements in technology, environmental challenges, and social concerns have introduced new complexities to CM activity across all countries in the UNECE region. Contemporary shifts include “new technologies such as smart buildings, sharing economy platforms, and the Internet of Things (IoT), changing global weather conditions that require new energy efficiencies and sustainable development practices (…)” (UNECE, 2019, pp. 11).

The CM sector is currently facing significant challenges, exacerbated by poor adaptation to a rapidly changing world and evolving customer needs, which seriously affect the growth potential of companies. Consequently, a company's competitive advantage will depend on its ability to effectively face these new challenges.

An in-depth analysis of these problems will therefore be carried out, as well as the development of strategies to mitigate them, taking advantage of the benefits of technology. Given this panorama, this work will seek to answer to the following questions:

- What is the impact of the use of technology by companies?
- Why are companies from different sectors implementing Artificial Intelligence (AI)?
- How is the CM sector in Portugal? How competitive are companies in this sector?
- Are there economic and social conditions for the implementation and acceptance of this project?

Based on these questions, the author aims to understand the influence of technology on companies, particularly in the CM sector, in order to understand whether it is approaching or distancing itself from this reality.

Therefore, this work centers on the development of a business plan to assess the economic viability of a technological solution to improve the services available in the sector, based on the assumption that technological adaptation has been beneficial in other sectors and can bring advantages in terms of scalability, process efficiency and cost reduction, among others.

The development strategy will be based on creating a tighter connection with customers, prioritising the use of intelligent databases and the automation of communications processes, as well as investing in a dynamic and intuitive website, designed to offer an optimised user experience. Furthermore, a key differentiator will be the implementation of a specialised support system – an AI chatbot - aimed to improve the efficiency and responsiveness for both the company and condominium owners. Allied to the focus on customer satisfaction, it will be essential to continually invest in the training and dedication of employees, as this is the only way to achieve high quality standards and make a difference in this sector.

2. Literature review

2.1 Technology and Artificial Intelligence

In the current global marketplace, organisations are facing substantial competition and rapid technological progress, jeopardising their competitive advantage (Sultan & Chan, 2000). Companies are experiencing industry disruptions due to emerging technologies, leading to increased competition, a more hostile environment and innovations in business models (Manajemen & Ellitan, 2002). Therefore, success in today's environment requires companies to adopt new technologies as a strategic advantage, which offer procedural and cost benefits and enable them to keep pace with market developments (Sultan & Chan, 2000).

Technology has evolved from a traditional support role to a central element of business strategy and is now considered a strategic tool for achieving sustainable competitive advantage (Manajemen & Ellitan, 2002). The utilisation of technology depends on effective management, namely the creation of technology internally, its development externally, its integration into operations and the management of skilled and operational workers (Manajemen & Ellitan, 2002).

Numerous studies have explored the effect of Information Technologies (IT) on the quality of services and the performance of organisations. Although these studies generally agree that IT significantly improves the quality and quantity of information and those who invest more in IT tend to perform better than those who invest less, its potential for adoption and innovation can be uncertain (Lakhwani & Omkar, 2020).

In recent years, AI has emerged as a disruptive force in various sectors and nowadays is widely used for strategic decision-making and problem-solving tasks that traditionally only humans could do, relying on their cognitive abilities (Haefner et al., 2021). AI refers to intelligent systems capable of performing tasks through data, analysis, and observations without explicit programming, enabling machines "to perform cognitive functions previously only associated with human minds" (Krakowski et al., 2023, pp.2), since they possess nearly limitless information processing capacity, frequently yielding more accurate predictions than humans.

Scholars in the field of management speculate that the advent of AI alters the foundations of competitive advantage. However, they present divergent perspectives on the nature of this transformation. Some of them argue that AI serves to replace human cognitive abilities, and another point of view suggests that AI works as a complement to, rather than a substitute for,

human cognitive abilities (Krakowski et al., 2022). In either of the following ways, the utilization of AI by companies is a major disruptor, driving the creation of innovative business models in various industries (Lee et al., 2019).

The evolution of AI chatbots has advanced with the creation of intelligent personal voice assistants. These assistants, integrated into smartphones or dedicated home speakers connected to the internet, understand voice commands, speak with digital voices and manage tasks such as controlling home automation devices, calendars and emails (Adamopoulou & Moussiades, 2020). Developed in 2010, Apple Siri was the pioneer. In the years that followed, several companies adopted the virtual assistant strategy, such as IBM Watson, Google Assistant, Microsoft Cortana and Amazon Alexa (Adamopoulou & Moussiades, 2020).

The integration of AI into organisations is changing the way entrepreneurs run their businesses, playing a decisive role in boosting productivity, efficiency, and cost reduction in parallel (Tewari & Pant, 2020). This idea is an important guideline for the development of this innovative project.

2.2 Management Reshaping

Digital transformation is reshaping the way enterprises engage with their customers, who are more informed and empowered, leading to a change in their behavior and expectations.

Therefore, the adaptation of companies and the need for managers to adapt to intelligent machines is rapidly emerging. Managers at all levels will need to master the best practices to thrive in an environment where AI is capable of doing repetitive administrative tasks faster and cheaper than managers all over the world.

According to the Harvard Business School survey that encompasses 1.770 managers from 14 countries, the main conclusions consist of:

- Administrative coordination tasks, which managers spend half of their time on, are possible to automate. Software robots enabled by AI have been relevant in some companies, helping with management reports drafts written in a few minutes, relieving the burden of unstimulating tasks, and enabling managers to perform more interesting work.
- Many decisions demand knowledge that goes well beyond what AI can extract from data alone and managers can use their knowledge of the organization’s history and culture,

as well as empathy and ethical reflection. In this way, the experience, knowledge, and the capacity to consider the surrounding factors cannot be replaced by the applicability of rules, like the way intelligent machines do. Technology should therefore be seen as a support and not a replacement.

- The creativity of managers is important, but the ability of managers to harness the creativity of others is even more important. Bringing together ideas and curiosity to find appealing and workable solutions is an indispensable skill that can be expanded while AI, which should be seen as a "colleague", takes on administrative tasks and evaluates the consequences of decisions and possible scenarios.

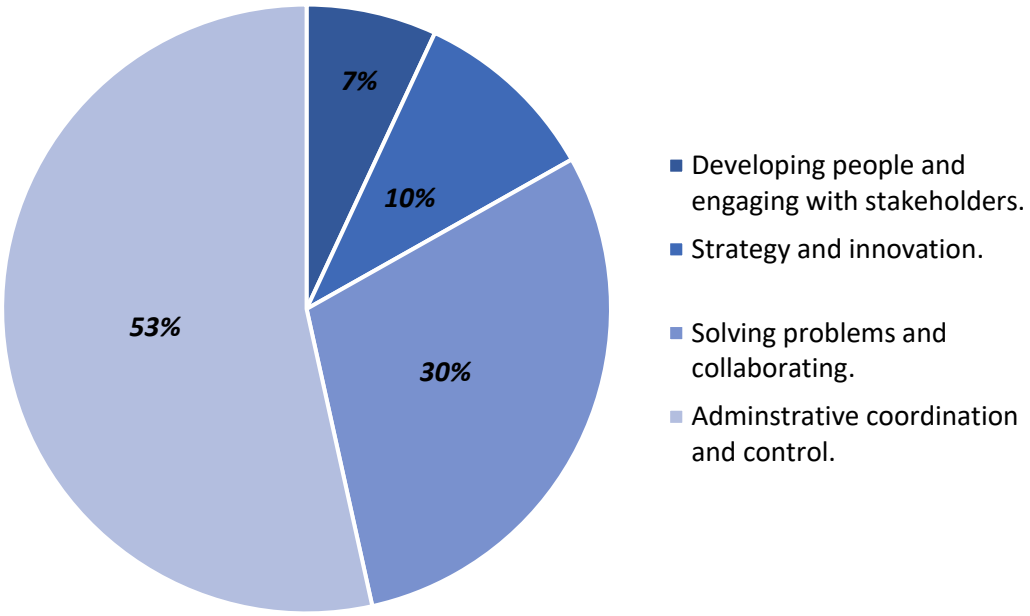

Figure 2-1: *How Managers Spend Their Time.*

Source: *Harvard Business Review, 2016.*

The managers surveyed recognize the importance of decision-making skills but underestimate the significance of interpersonal skills crucial for networking, mentoring and collaboration, which are essential in an AI-driven world. Although they take advantage of digital tools to acquire knowledge and make decisions, it is crucial that they effectively integrate different perspectives, knowledge and experiences (Kolbjørnsrud et al., 2016).

2.3 Start-ups

For a long time, the concept of a start-up was quite broad, including all companies that began their activity. Today, this is a more concrete concept that encompasses some companies related to technology and innovation, making them the pillars for rapid growth in operations and internationalization with an essential role in the business world (Informa D&B, 2023). Their inherent agility allows them to adapt quickly and thrive in the dynamic and competitive marketplace (Olorunyomi Stephen Joel et al., 2024).

Successful startups can contribute to economic growth with their expansion over time, generating more economic activity and more demand, contributing to an increase in job opportunities (Damodaran, 2009). Innovative products or services may lead to job creation in different areas that were not relevant before, generating employment opportunities that require advanced skills, propelling progress in technology, and contributing to the cultivation of a highly qualified workforce (Damodaran, 2009).

However, the process of entering the market can be complicated. Startups usually have limited financial resources and reveal difficulties in raising equity or debt, relying on internal sources of finance which includes all types of cash flows generated by the company (Laitinen, 2019).

Furthermore, start-ups cannot cultivate innovation in isolation, given the complex and non-linear nature of the innovation, relying on external actors to enhance their innovation capabilities (Fukugawa, 2018). The matter of entrepreneurial opportunities involves an institutional aspect that requires consideration: it is not solely the economic environment that shapes opportunities. Beyond the economic context, the presence of both informal and formal institutional conditions, encompassing aspects such as culture and the legal framework, forms a backdrop that significantly influences how various economic agents interpret the future, establish objectives, and conduct themselves (Marcon & Ribeiro, 2021).

2.4 Condominium Management Sector

CM belongs to the service sector and, although it is predominantly made up of micro-enterprises, it is a sector that generates a lot of money and employment, since its impact extends to several areas related to condominiums operations (Cabral, 2023).

The sector is characterised by lack of regulation, which jeopardises the quality of services and the responsibility of companies for their actions, leading to a loss of trust on the part of condominium owners, “giving rise to hundreds of consumer complaints” (Portal da Queixa, 2022). The growing number of companies in this sector, along with the increase in complaints, has led the portuguese government to try to implement appropriate legislation to regulate the activity of the companies, appealing for “professionalism and responsibility”, establishing standards of integrity and demanding guarantees in this regard (ECO, 2022).

The lack of regulation not only impacts existing companies, but also facilitates the creation of new companies with little specialisation and knowledge in the area due to the low barriers. Consequently, there has been a growing demand for specialised professionals who offer quality solutions for building management services (Loja do condomínio, 2016).

According to the Association of Condominium Management and Administration Companies’ (APEGAC) president, Vítor Amaral, the landscape is overly complex, and the role of the condominium manager is profoundly important, to maintain stable standards, particularly in terms of security and maintenance as well as to deal with various challenges and divergent interests. In this sense, "additional training is imperative" and this trend must be reversed since “demand must be driven by quality" (Freitas de Sousa, 2023).

2.4.1 Condominium Living

The escalating global urbanization trend is leading to a surge in the construction of high-rise residential buildings in urban areas, putting a strain on CM services (UNECE, 2019). Living in condominiums[1] is more intricate compared to residing in communities of standalone houses, as condominium residents often need to engage with fellow community members when using public spaces or facilities and participating in community affairs (Kuo et al., 2011).

Given the current pace of life, it is exceedingly difficult to find condominium owners willing, able, and available to take on an increasingly demanding role. Most condominium owners do

[1] A condominium is a building with several flats in horizontal ownership in which each residential fraction has an individual legal title and can be legally owned separately from the whole (UNECE, 2019),while ownership of public spaces and common facilities is shared by all owners (Kuo & Chou, 2011).

not participate in condominium decisions and systematically miss condominium meetings, revealing an attitude that considers condominium problems to be the responsibility of others (Loja do condomínio, 2023). The difficulty of assigning the role of administrator to the condominium owners themselves has led to the need for specialised companies.

Whether a natural or legal person, the administrator is responsible for various areas, including the condominium's administrative, financial, accounting, commercial and security matters, as well as ensuring the quality and efficiency of the services provided by external suppliers, such as cleaning, lift maintenance, repairs and painting, among others, to preserve and enhance the common assets while minimising costs (Calafate, 2020). Therefore, following the owners' objectives and the established condominium rules, the administrator is responsible for operations that involve decision-making and control (Puķite & Geipele, 2017), but also inform about the condominium regulation and state the rights and obligations of residents, to protect their common interests and guarantee the smooth running and harmony within the building.

Moreover, the administrator of the condominiums must perform their duties for at least one year and may renew their duties if the majority of the owners agree.

2.5 Innovation and Entrepreneurship

In the 2020 edition of the European Innovation Scoreboard (EIS), Portugal has been classified as a nation with a significant emphasis on innovation. This annual report, issued by the European Commission, is designed to assess and track the innovation performance of member states within the European Union (EU). The positive trajectory in Portugal's performance over the years underscores the enhanced innovation capabilities of companies, Research and Development (R&D) entities, and most stakeholders within the National Innovation System (NIS) (Portal do Governo, 2020).

Innovation can be characterized by the introduction and implementation of something new, encompassing new ideas, methods, or devices (Fjortoft et al., 2018). Also, according to the Office of Community Economic Development (OCED), innovation can be the implementation of a new or substantially enhanced product or process, a fresh marketing approach, or an innovative organizational method in business operations, workplace structure or external interactions (Govindan, 2022).

Furthermore, innovation is a fundamental aspect of entrepreneurship and entrepreneurship encompasses more than merely identifying profit opportunities; it also involves “coming up with

a business idea about how to recombine resources to explore those opportunities" (Sahut & Peris-Ortiz, 2014, pp.2). However, the process of discovery also involves certain personal aspects such as personality traits and psychological characteristics which explains entrepreneurs' ability to exploit opportunities successfully (Sahut & Peris-Ortiz, 2014).

Entrepreneurial opportunities are defined as scenarios where new products, services, raw materials, and organizational approaches can be introduced and sold at a price exceeding their production costs (Sahut & Peris-Ortiz, 2014). Besides traditional education has depended on assessing analytical thinking, which aims to find a single correct answer, divergent and creative thinking evaluates how students employ various methods to solve a problem, being a crucial element for both innovation and entrepreneurship (Fjortoft et al., 2018). Furthermore, the entrepreneur serves as the primary driver, shaping the firm's behavior and, by extension, its development (Julien, 1998).

The main influences on entrepreneurship research have come from the fields of economics, psychology, and sociology. Acknowledged as the pioneers of entrepreneurship research, Schumpeter (1934) and, later, McClelland (1967), initially adopted a psychological standpoint, focusing on individuals as the central subjects of study (Frese & Gielnik, 2014). However, a shift occurred in mainstream entrepreneurship research between 1980 and 2005, with the prevailing approach aiming to elucidate entrepreneurship through economic and strategic theories. In more recent times, scholars have reintroduced the significance of a psychological perspective (Frese & Gielnik, 2014).

2.6 Valuation Methods

2.6.1 Discounted Cash Flow

Internal financing depends on the Cash Flow (CF) produced by the start-up and is therefore a key indicator as to whether a company is facing financial difficulties or whether, on the other hand, it shows strong CF that allow it to maintain its operations and grow (Laitinen, 2019). Given the importance of CF for the development of start-ups, valuation methods based on Discounted Cash Flow (DCF) are recommended by experts and is the preferred method when there is little information available for comparison, returns are lower and growth expectations are high.

The DCF methodology estimates the value of the company by the accumulated present value of its future CF, since there are no measurable investments or market opportunities yet.

Thus, the company's value does not depend on the past or current situation, but on its ability to generate CF in the future.

There are some crucial metrics in DCF methodology. Firstly, the Free Cash Flow to the Firm (FCFF) model stands out as the most prevalent because it provides a comprehensive view of company performance, reflecting its ability to generate value objectively (Dong, 2018). By using this method, businesses can gain a more accurate understanding of their market worth. Secondly, the Weighted Average Cost of Capital (WACC) which considers both debt and equity of the firm, is the interest rate that a company must pay to all its bondholders. Lastly, the Enterprise Value (EV) will be obtained by the FCFF updated for the present time at the WACC rate (Dong, 2018).

2.6.2 Multiples

The multiples method evaluates a company by comparing it with a peer group in the same industry or, if more appropriate, with just one company with similar characteristics. When using a group of companies, and after calculating the average values of the multiples, outliers must be excluded to obtain more realistic values (Mota, 2020).

However, multiples have some limitations such as being a simplistic approach, based on historic data or near-term forecasts, and failing to capture differences in projected performance over the longer term. Also, eventual differences in accounting policies may introduce distortions in the valuation process.

Furthermore, multiples focus on the key statistics that investors and other market participants use in their investment decisions for mature and stable businesses, rather than early-stage companies. Given the limitations, multiples can be used as a complement to the DCF analysis, working as a tool to assess the reasonability of DCF assumptions (Mota, 2020).

2.7 Valuation metrics

2.7.1 Net Present Value

Traditional capital budgeting presents decision-makers with a simple binary choice - to invest or not invest. In this sense, Net Present Value (NPV) consists of a now or never decision given by the present value of the difference between the project’s value and its cost (Sporleder & Bailey,

2001). Matter of fact, the key difference between real options and conventional decision-making lies in the range of choices each approach provides.

NPV represents the net profit or gain obtained at the end of a project or investment (Ardyn Sari Sinaga et al., 2023) and is the only valuation measure "consistent with a firm's objective of maximizing its shareholders' wealth" (Trigeorgis, 1996, p.25) in the absence of flexibility, and therefore generally considered superior to other methods of valuation such as Internal Rate of Return (IRR) and Payback Period (PP) (Sporleder & Bailey, 2001).

The time value of money is an important maxim that explains that the value of money today is not the same as the value of money tomorrow and the NPV is one of the DCF techniques that takes this into account (Bora, 2015). However, the basic NPV rule overlooks the significant impact that delaying an irreversible investment expenditure can have on the decision to invest (Sporleder & Bailey, 2001).

2.7.2 Internal Rate of Return

The IRR indicates the rate of return required to balance the present value of investments with the present value of returns.

According to several authors, the IRR is the discount rate that makes the NPV zero when the present value of future CF reaches equilibrium. It is a capital budgeting method that considers the time value of money, discounting future CF based on the cost of capital or interest rates (Ardyn Sari Sinaga et al., 2023).

Therefore, the IRR represents the highest cost of capital that an investor is willing to accept. If the discount rate exceeds the IRR, the NPV will be negative, indicating that the project is not a worthwhile investment (Dai et al., 2022).

2.7.3 Payback Period

The PP is a technique used to determine how long it will take to recoup the funds invested in a project. This approach provides information on the length of time needed to break even on an investment through the CF generated by the project, with a shorter period suggesting a more attractive investment (Ardyn Sari Sinaga et al., 2023).

3. Methodology

New businesses require several considerations, such as a well-defined idea, legal considerations, financial planning, marketing strategies, structure of operations, and technology, among others. In this way, both quantitative and qualitative data will be employed in this project.

Internal sources, such as reports and information from condominium companies, as well as the knowledge absorbed by the author when working for a CM company, were used to delve into the following points. External sources are studies, reports, scientific articles, newspapers and books. For example, APEGAC, *Informa D&B* and *Jornal Económico* are excellent sources of information for gaining a comprehensive understanding of the evolution of start-ups in Portugal, as well as for gathering relevant qualitative and quantitative data on condominiums. In addition, European Central Bank (ECB), Bank of Portugal, portuguese government portal and Professor Aswath Damodaran's website were crucial to having up-to-date interest rates, growth rates and macroeconomic values.

This project will begin with the development of the literature review, the aim of which is to analyze and understand the historical context of companies, particularly with the insertion of technology and AI. It will also be exposed various authors' opinions on the current panorama of CM companies and the experiences of condominium owners. By analyzing these topics, the review literature will help to identify unexplored areas, highlighting the significance of this work.

Additionally, to reinforce the key themes inherent to company formation, topics such as innovation and entrepreneurship will be addressed, as well as evaluation methods and metrics.

A market analysis will proceed to understand the external environment through a Political, Economic, Social, Technological, Environmental and Legal (PESTEL) analysis. Also, a competitor analysis will be performed to gain insights into the competitive landscape, providing an overview of current market competitors. Furthermore, a comprehensive evaluation will be carried out using Porter’s five forces model, offering deeper insights into the potential competitive intensity.

Subsequently, an internal analysis will be conducted aiming to identify the Strengths, Weaknesses, Opportunities, and Threats (SWOT) specific to this project, since it constitutes a relevant analysis to identify the resources that can be used for developing a competitive advantage. Also, the implementation strategy will be developed including pricing strategies, distribution, marketing, communication, and financial assumptions.

The business plan will have a time horizon of 5 years and will be elaborated by the author in Excel. In fact, the financial assessment aims to understand the viability of the project and will

be based on both existing data assumptions in the CM sector and assumptions made by the author. The DCF methodology will be used, and the calculation of CF will be a crucial step in this business plan.

Important metrics to consider whether the project is viable or not will be NPV, IRR, PP, and the Weighted Average Cost of Capital (WACC). In addition, the profitability ratios, the sensitivity analysis, and the scenario analysis will be carried out on the viability of the project from different perspectives, considering market fluctuations and other project risks.

4. Market analysis

4.1 Overview of Start-up Landscape in Portugal

According to the Startup Portugal report, the Portuguese start-up ecosystem ranks 12th in the "Startup Genome Ranking - Top 100 Emerging Ecosystems" (Startup Portugal, 2022, pp.13). Portugal is an attractive place for entrepreneurs. Although it is a small ecosystem, it thrives thanks to talent, powerful investment opportunities, high english proficiency and an excellent quality of life and climate. Hosting the Web Summit has further increased its appeal, attracting foreign founders and investors (Startup Portugal, 2022).

Over the past decade, there has been a significant increase in the creation of start-ups in Portugal, and this trend has accelerated significantly, with 70% of the total number of start-ups being launched between 2018 and 2023 (Informa D&B, 2023). Indeed, Portugal has witnessed a notable shift towards innovation and digitalization among businesses whereby startup ecosystem is essentially comprised of 33% technology-driven startups, 17% Business-to-Business (B2B) ventures, 10% fintech startups, and 8% health-focused startups (Startup Portugal, 2022).

The portuguese government has been introducing public initiatives to strengthen the local start-up ecosystem, catering to local and international entrepreneurs looking to establish and expand start-ups in Portugal. Various funding opportunities are available through government partners such as the Agency for Competitiveness and Innovation, I.P., which offers incentives and support programs for entrepreneurs such as co-investment funding, social impact funds, entrepreneurship and innovation programs, as well as schemes including Portugal 2030 and the Business Development Support Line Startup. The goal is to promote entrepreneurship, competitiveness, innovation and economic growth in several sectors (Startup Portugal, 2022).

4.2 Overview of the Condominium Management Sector in Portugal

APEGAC is the organisation that represents the CM sector in Portugal and plays a preponderant role in regulatory processes seeking to respond to the growing needs of both companies and consumers.

According to this organisation, in 2022, the sector comprised a total of 3,347 active companies in mainland Portugal. Of this number, 44.3% were in the Lisbon region, 17.4% in Porto, 14.4% in the center, 10.4% in the north, 10.2% in the Algarve and only 3.3% in the Alentejo (APEGAC, 2023).

Nonetheless, according to the sectoral analysis conducted by *Informa D&B* for the year 2022, the CM sector with the economic activity code 68322, comprised 1142 entities with reporting accounts, of which 936 companies had a positive volume of business. The volume of business was on average around 104,592€ and the net profit was on average around 20,252€ in 2022 (Informa D&B, 2022).

According to *Portal da Queixa*, around 246 complaints were registered against CM companies in Portugal. Of these, only 45% were resolved and 79% were related to process management (Portal da Queixa, 2022).

Indeed, there is little commitment to this activity, with many companies carrying out CM as a second activity rather than their primary focus, with the likely result being poor management of the building, non-compliance with agreements and rules, lack of regulation and communication between the parties, leading to practices that discredit the activity and increase customer insecurity (Cabral, 2023).

4.3 APEGAC Survey

According to a study carried out by APEGAC and DATA E, to find out the reality of the market for companies operating in the sector, of the 3,347 companies active in Portugal, only 1,971 (58.9%) have valid contact details, and it was only possible to contact 1,662 companies (84.3%), resulting in 326 interviews. From this sample, representative of around 10% of active companies in the sector, it was possible to draw some conclusions:

- Nearly 50% of the companies surveyed said that building management was their only activity.
- Almost 25% of the companies surveyed have their business registered as their main activity but do not pursue it. In addition to the main activity, the most mentioned secondary sectors were "General cleaning and maintenance of buildings" and "Real estate agency". For most of these companies, building management accounts for up to 50% of business volume.
- More than 50% of companies made less than 65,000€ in 2022, but the average for all companies was 275,000€ for 2022, demonstrating the discrepancies in the sector.
- Companies have an average of 5 workers per company, but only 3 are fully dedicated to CM activity.
- Companies manage an average of 71 condominiums and 24 fractions per condominium.

- The business volume of this activity was around 750 million euros, in 2022.

The aforementioned conclusions will help to develop some of the assumptions in the business plan.

4.4 Market drivers

- The population's pace of life has been increasing due to globalisation and growing technological developments. Quick and easy access to information, instant communication and the adoption of different working methods have led people to seek quicker and more immediate solutions and to have less and less desire to deal with issues that take a long time to resolve.
- The stagnation of the CM sector in recent years emphasises the need and the opportunity to innovate and introduce new methods and technologies capable of adding more value to the services provided.
- There are many complaints about the quality and professionalism of CM companies, particularly the long waiting times for answers or for problems to be resolved.
- From now on, the condominiums being built will tend to be increasingly complex and modern, requiring a higher level of management. It is therefore imperative to increase the sector’s responsiveness.

4.5 Market trends

- There has been rapid development and integration of AI by companies, used for predictive analysis or chatbots. Chatbots are software programs designed to replicate human conversation, and the idea is that instead of talking to a human, the user interacts with a computer that imitates human speech. Nowadays, it is easy to find these chatbots on many websites to help with interests and questions about products. Many companies may even invest more in this type of tool than in mobile phone applications and it is estimated that this trend will grow for almost all types of business and improve customer satisfaction (Nair, 2019).
- Launched in January 2009, WhatsApp has gained a lot of popularity through the years. It consists of a free messaging application that connects iPhone and Android users with instant messaging and a simple, intuitive user interface. The application also offers the

possibility of sharing files such as images, videos, links, documents, voice messages and video calls instantly (Coetzee, 2024). In 2024, WhatsApp already has 2.78 billion users worldwide and this number is expected to continue to grow (Ceci, 2024).

- WhatsApp's AI chatbots are available 24 hours a day, 7 days a week, guaranteeing immediate access to support and instant responses for a smooth and satisfying experience. The chatbot can be scaled effortlessly, managing several conversations at the same time, regardless of the number of users.

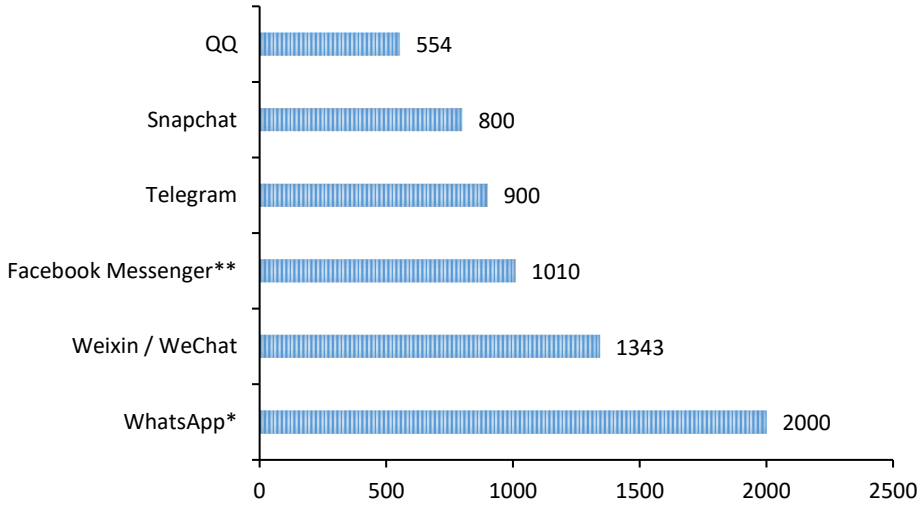

Figure 4-1: *Most popular global mobile messenger applications as of April 2024, based on number of monthly active users (in millions).*

Source: *Statista, 2024.*

5. External Analysis

5.1 PESTEL Analysis

Introduced by Francis Aguilar in 1967 as an analytical tool for strategic planning that examines macro-environmental factors, the PESTEL analysis is considered one of the most valuable tools. It aids in highlighting the challenges that a company needs to face in its macro-environment (Khan et al., 2023).

5.1.1 Political context

The outbreak of the COVID-19 virus has caused a significant global economic recession, comparable only to the mortgage crisis of 2007. The pandemic has disrupted the finances of countries and companies, seriously affecting economic growth and business development. There was a worsening of the financial problems that had existed since the Troika's intervention (2011-2014), in which companies faced elevated levels of indebtedness and undercapitalisation (Tavares et al., 2023).

Furthermore, at the time of drafting this paper (October 2023), there was a political crisis in Portugal due to the resignation of former Prime Minister António Costa. The fall of the government, the early elections and the uncertainty surrounding the approval of the state budget have caused instability in Portugal at various levels. According to the chairman of the board of the Portuguese Business Association, the current political framework will reduce activity and jeopardise the recovery and resilience plan and the Portugal 2030. From the decline in international investor confidence to the fall in exports, which could lead to negative growth, Portugal runs the risk of ending in a technical recession (RTP, 2023).

Along with the fall of the government in Portugal, a scenario of political uncertainty is emerging in the other EU countries, with the parties on the extreme right increasingly gaining ground. This reconfiguration of Europe's political dynamics raises some uncertainty about its stability and future and poses new challenges to EU values.

In addition, the war between Russia and Ukraine is affecting Portugal and the world, with the main consequences being high inflation rates and a disruption in the supply chain, since Russia is the world's largest exporter of raw materials such as natural gas and oil. European Commissioner for Economy, Paolo Gentiloni, claims that the Russia-Ukraine war will slow

european economic growth through “higher energy prices and lower business confidence and to some extent trade” (Thomas & Strupczewski, 2022).

5.1.2 Economic context

The portuguese tax system has been suffering changes since the economic and financial crisis in 2010, when the downward trend in corporate income tax was reversed. Corporate income tax is a particularly important competitive instrument for company profits. In fact, in recent years Portugal has not followed the trend of other EU countries in reducing the tax burden, which could have a negative impact on productivity and wealth creation (Brinca et al., 2024).

Productivity is an indispensable factor in countries' economic growth, measuring the relationship between resources and production. Innovation and technology are pillars for improving productivity and are key elements to the success of companies. In general, productivity indices in Portugal and Europe have been falling over the years (Appendix 1).

Corporate income tax has a direct influence on Gross Domestic Product (GDP). Indeed, a reduction in the tax means a growth in GDP to the extent that there is an increase in competitiveness and investment in physical capital, R&D, as well as a generalised increase in consumption, boosted by the increase in disposable household income (Brinca et al., 2024).

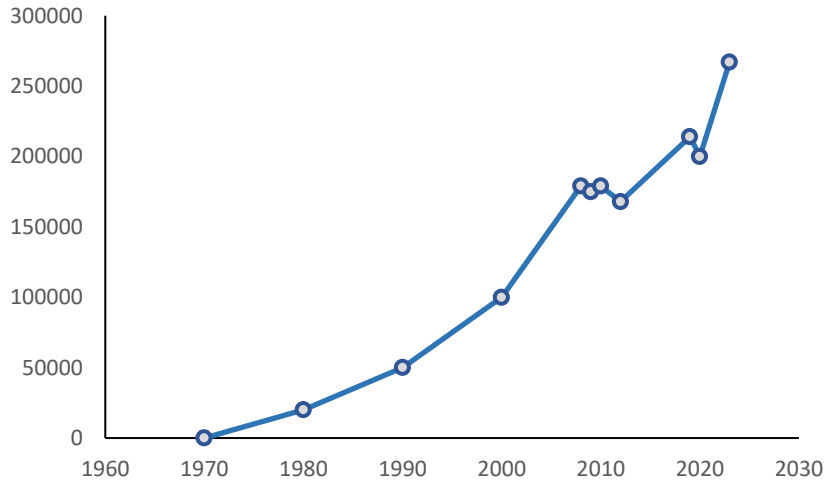

Figure 5-1: *Gross Domestic Product evolution (in millions) for Portugal between 1970 and 2023.*

Source: *Instituto Nacional de Estatística (INE), 2024.*

Furthermore, the COVID-19 pandemic had a significant negative impact on the world economy and in 2020, Portugal registered the largest decrease in GDP that fell by 8.4% due to the halt in economic activity and social isolation. This decline was greater than the EU's decline for the same year (Appendix 2).

In addition, world GDP fell by 3.4% in 2020, registering a value of 84.9 trillion dollars that year, which translated into a decline of 2 trillion dollars in lost economic output (Statista, 2024). Despite this setback, the global economy recovered quickly, achieving positive growth in 2021, with a GDP of around 96.3 trillion dollars (Statista, 2024).

High inflation and poor global economic conditions dampened growth in 2022, especially due to the challenges posed by the Russia-Ukraine war (OECD, 2023). In this way, the years 2022 and 2023 were marked by high levels of inflation, high energy and food prices, supply disruptions, erosion of purchasing power and firms' investments as well as some geopolitical uncertainty (OECD, 2023).

Nevertheless, the inflation in Portugal is expected to fall from 5.3% in 2023 to 2.9% in 2024 (Banco de Portugal, 2023). According to the ECB projections, inflation is expected to slow down and stabilise around the reference value of 2% from the middle of 2025 (Lane, 2024). Interest rates, such as the Euribor rate, have also risen in this period, with a gradual decrease expected by 2025 (Banco de Portugal, 2022).

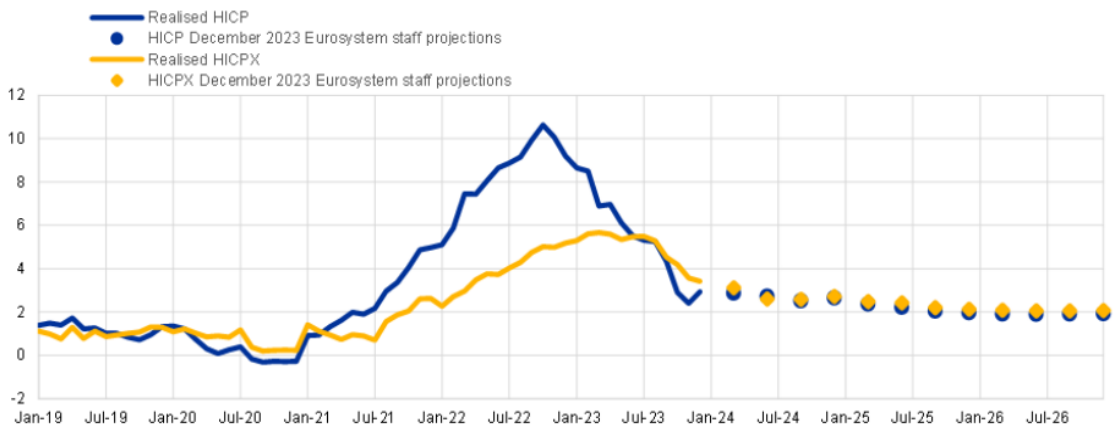

Figure 5-2: *Global inflation, core inflation and Eurosystem staff projections.*

Source: *European Central Bank, 2024.*

5.1.3 Social context

In 2022, Portugal had around 10,444.2 million inhabitants, of which 4,984.5 million were men and 5,459.7 million were women (PORDATA, 2022). Economic and social inequality is reflected in the population's low levels of education since only 52% of portuguese population between the ages of 25 and 64 have secondary education, there are prominent levels of youth unemployment and a substantial risk of poverty (Carrapatoso, 2021).

As these socioeconomic challenges continue to affect the portuguese population, they also shape consumer behavior. Faced with growing customer demand and the increasing pace of life of the population, leading to less time available on a day-to-day basis, companies' competitive advantage must be achieved through practices that encourage transparency in actions, improve communication and produce faster response levels as well as efficient and reliable practices that meet consumer needs.

Over the years, the country's ageing index has grown, and in 2022 there were 183 elderly people for every 100 young people (PORDATA, 2022). Between 2009 and 2019, the EU average for the increase of the population aged 65 and over, was 2.9%, while in Portugal the figure was 3.8% (Eurostat, 2020).

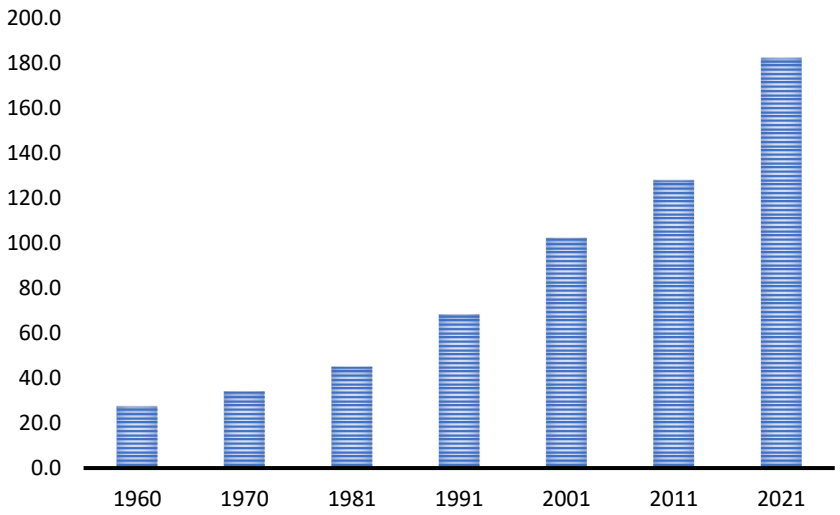

Figure 5-3: *Ageing Index according to the Census (per 100 young people) in Portugal.*

Source: *Pordata, 2023.*

Portugal has an ageing population and besides some older people find it difficult to use Information and Communications Technology (ICT) in their daily lives, the introduction of touchscreen computers and mobile phones has brought benefits and ease of use “for older people for whom social participation is seen as a vital component of healthy ageing” (Niksirat et al., 2016, pp.1).

More efficient spending will be crucial to address the growing budgetary pressures stemming from an ageing population and significant investment needs, notably to support green and digital transitions (OECD, 2023). Portugal needs a credible medium-term fiscal consolidation strategy in areas where there is underinvestment, and to focus on productivity growth, as well as the progressive reduction of unemployment, to achieve solid and inclusive growth.

5.1.4 Technological context

Digital transformation involves leveraging technologies such as AI, cloud computing, data analytics, and automation to enhance operations, customer experiences, and organizational agility. Moreover, embracing digitalization enables companies to optimize processes, scale efficiently, and create disruptive products or services, thus opening new revenue streams and entering untapped markets (Olorunyomi Stephen Joel et al., 2024).

In recent years, Portugal has witnessed a rapid technological evolution in several sectors. There has been a notable increase in investment in tech startups and the portuguese government has promoted initiatives to digitise public services and encourage the adoption of emerging technologies, providing opportunities for the development and implementation of innovative technological solutions (Gonçalves, 2023).

Additionally, there has been a significant advance in the acceptance of AI in society. Nowadays, the regular people interact with AI tools, whether for personal or professional purposes, leveraging the priority of establishing standards and defining financial support for this technology. In the context of Portugal 2030, key proposals include fostering productive innovation through task automation, improving product and service quality, and optimising production and management processes, as well as promoting the internationalisation of small and midsize enterprises, technological research and development, and enhancing company qualifications (HM Consultores, 2022).

5.1.5 Legal context

The portuguese government should implement initiatives that support efficiency in housing and the adoption of good practices that lead to a more sustainable use of resources in the residential sector, whether at national or regional level, to operationalize and achieve sustainable goals.

To fill the shortcomings in the CM sector, a technical specification was developed to assess the quality of services - the RET003 standard (APEGAC, n.d.).

This certification establishes the minimum requirements for the provision of CM services and some necessary competences, proving the quality of processes and promoting better management of resources and expenses, making companies more competitive. Although it is not compulsory, by complying, the organisation implements a quality management system and obtains a certificate that increases its reputation and credibility in the market, which helps to regulate a sector that suffers from insufficient control.

5.2 Porter Analysis

Michael Porter's model of competitive advantage, known as the five forces model, presents a compelling perspective on how a company can attain a competitive edge within a specific industry by harnessing the influence of five critical forces shaping that industry.

Therefore, the ideal positioning strategy within a specific industry is where barriers to entry are high, both suppliers and buyers have low bargaining power, substitutes are scarce or nonexistent, and the existing rivalry is minimal.

5.2.1 Bargaining power of buyers

The power of buyers pertains to the influence wielded by buyers over the firm. In specific industries, buyers may demonstrate substantial bargaining power, particularly when the industry features a small number of buyers making large-volume purchases. This influence is especially pronounced in industries with high fixed costs, homogeneous products, and minimal switching costs for buyers (Goyal, 2020).

In this project, the power of buyers is considered high because the CM sector is not highly differentiated. The range of companies offering CM services has been increasing, making prices

similar and diversifying the client's options. Moreover, clients can switch to another company without additional costs.

5.2.2 Bargaining power of suppliers

Powerful suppliers can secure greater value for themselves through increased pricing, quality, service restrictions, or transferring costs to industry participants (Goyal, 2020). Generally, the suppliers with the most power are those that provide essential goods and services, such as canalised water, and where there is little competition.

The suppliers in condominium activities can be cleaning companies, painting, or carpentry companies, lift repairs, alarm systems or even construction companies.

The bargaining power of suppliers is identified as low as CM companies have a variety of potential partners to choose from, and some CM companies do not include these suppliers' services in their standard packages.

5.2.3 Threat of new business competitors

The threat of new players could be the most challenging among the five forces, particularly when considering the context of the contemporary globalized world where entry barriers are nearly nonexistent. New entrants exert pressure on existing companies to reduce prices, thus affecting profitability and, in some cases, can have the potential to force entire companies out of the market (Goyal, 2020).

The power of new entrants is rated as medium/high, as CM activities require a low initial capital investment, since most of the services provided do not require highly specialised skills (thus not requiring high personnel costs) or advanced equipment to achieve an acceptable level of service quality. Furthermore, the sector is still poorly regulated.

5.2.4 Threat of substitutes

The threat of substitutes emerges when consumers are presented with options that could deliver a comparable level of utility. The risk of substitutes increases in situations where there is an appealing balance between price and performance or when buyers face minimal switching costs. While it might appear straightforward to address, the complexity arises from the fact that firms

often lack awareness of all potential substitutes, making the mitigation of this threat more challenging (Goyal, 2020).

The power of substitution is considered high, not because there is another type of product that satisfies the specialised management of a condominium, but because most CM companies are not aware of their clients' needs, are unable to manage buildings effectively and often have high barriers to communication. As prices generally don't differ much, it's relatively easy for clients to migrate between companies.

5.2.5 Existing Rivalry

The impact of competition on a sector's profit potential depends on the intensity and character of the competitive dynamic, which is often amplified in slow-growing sectors with many competitors. In these cases, companies can misinterpret market signals, creating a “Prisoner's Dilemma” in which co-operation is not plausible and the gains for one company are equivalent to losses for another. However, it should be emphasised that this competitive threat can also be advantageous if each competitor targets different segments of the market (Goyal, 2020).

The CM industry is competitive with the increasing number of new companies in recent years and the growing customers’ expectations. In this way, there is an urge need to improve service quality and innovate the way these companies are operating, not only for client satisfaction but also to achieve favorable outcomes such as profitability, productivity, return on investment, and cost reduction (Kuo & Chou, 2011). The competitiveness and the lack of a reliable system for assessing service quality have led these companies to adopt low-price strategies to increase their market share.

5.3 Competitors Analysis

The analysis of competition will focus on companies based in Lisbon with only one main activity, CM services, since more than half of the companies in the sector have other main activities. Therefore, according to the portuguese public services portal, the “Real Estate Activities” category includes “Buying and selling of real estate” with an economic activity code starting at 681, “Renting of real estate” with an economic activity code starting at 682, and “Real estate activities for hire or reward” with an economic activity code starting at 683, the category into

which the proposed company falls. As the main activity is “Condominium Management”, the corresponding economic activity code is 68322.

Therefore, the main competitors identified are:

- *Loja do Condomínio*, better known as LCD GROUP, is the market leader in Portugal. It recognises innovation and training as fundamental pillars of growth and, in 2023, it merged with INMHO, the spanish leader in the sector, from which Portik Group was born, taking over Iberian leadership.

- *RS Condomínios*, located in Parque das Nações and founded in 2015, is a company with many years of experience that offers a full range of management, administration, financial and accounting, and security services.

- *Meu Condomínio*, is based in the Lisbon metropolitan area and was founded in 2014. It presents itself as a company that aims to increase the quality of services in the sector, recognising existing shortcomings such as a lack of transparency and dedication. They offer a wide range of services, with a special focus on the municipality of Lisbon.

- *Lithoespaço Gestão de Condomínios* was founded in 1997 in Lisbon and has a wide range of clients. It was honoured with the Regions 2024 Five Star Award, which tested variables such as satisfaction, price-quality ratio, reliability and innovation, thus giving it credibility and trust.

In general, the companies offer a similar range of services and market prices. However, it is possible to point out that although many companies recognise the problems in the sector and claim to be guided by values of transparency, trust, and innovation, they do not demonstrate innovative working practices and methods that set them apart from the rest.

6. Internal Analysis

6.1 SWOT Analysis

Organisations employ diverse business models to formulate their goals and plans, with SWOT analysis being a commonly utilized concept.

Through the implementation of a SWOT analysis, startups can enhance their understanding of both their business and the operational environment, enabling them to set strategic objectives and make well-informed decisions about their future course. By recognizing their strengths, startups can effectively leverage them to gain a competitive edge. Simultaneously, the identification of weaknesses empowers them to address and improve these areas, thereby enhancing overall business operations.

Strengths:

- Innovative way of operating, saving managers' time.
- Technology-based solutions with process automation.
- Specialised support available at any time to help customers.
- Competitive model.

Weaknesses:

- Technology costs.
- Different business approach which might seem unusual for some people.

Opportunities:

- Increasing use of technology and AI as useful working tools.
- Players with inefficient practices which have led to growing costumer dissatisfaction.
- Government financial support to startups.

Threats:

- Increasing number of new players in the market.
- Competitors with substantial reputation.

- The CM activity is a non-essential service and that can block customer migration to the company.

6.2 Development Strategy

6.2.1 Brand

A company should be able to express its brand and embrace customers by expressing what the company is (the identity pillar), by revealing its mission, vision, strategic objectives and marketing mix (the object pillar) and by better understanding the impact on the target public and notoriety (the interpretant pillar) (Baynast et al., 2018).

The value of a brand differs between customers and companies. For customers, a brand can represent trust, quality, and a guarantee of satisfaction. On the other hand, the brand is an essential strategic asset that influences consumer loyalty, facilitates market differentiation, and boosts growth and profitability for companies.

Therefore, the company name, along with its logotype, colors and overall image, should be a memorable and appealing sound that sticks in customers' minds, making it easily recognisable among the competition. The chosen name, logotype and overall image of the proposed company are as follows:

Figure 6-1: *Logotype of the company in english.*

Source: *Author.*

Figure 6-2: *Logotype of the company in portuguese.*

Source: *Author.*

6.2.2 Misson, Vision and Values

AICondo's development strategy is based on solid pillars such as innovation, efficiency, and customer orientation. Based on these pillars, the company's mission, vision, and values have been defined:

- Mission: AICondo aims to make condominium management efficient through technological solutions to improve people's lives.
- Vision: The goal is to become the leading provider of innovative solutions that revolutionise condominium management services, setting new standards of efficiency and quality of life for owners.
- Values: Integrity, transparency, communication, engagement and innovation.

6.2.3 Value proposition

Provide an efficient and simplified management of condominiums, guaranteeing faster response times for resolving problems as well as improved communication capabilities, allowing residents to have hassle-free living experiences.

6.2.4 Critical Success Factors

The strategy of a company should involve the creation of capabilities that distinguish it from competitors and the effective utilization of its human capital to meet client demands. Indeed, for a company to remain competitive, resilient, and sustainable, it needs a robust strategy that includes critical success factors.

The competitive advantage of the company proposed here will set it apart from the rest of the companies in the sector and the main points are:

- Access to personalized budgets in a few minutes, through the website.
- Reduced bureaucracy with the implementation of online procedures.
- Questions clarified and problems reported directly to the chatbot, available at any time.
- Innovative and technological project, giving managers around 50% more free time than regular managers and greater peace of mind for condominium owners.

7. Business Plan's Goals

This project aims to improve and leverage the CM sector through certain parameters:

- Appeal to the sensitivity of companies in this area to the current scenario of dissatisfaction and the need for change.
- Raise awareness among companies of professional practices that favor communication and transparency between the parties, as a way of increasing the credibility of companies in the CM Sector.
- Promote competitiveness through affordable prices without jeopardising the quality of services.
- Reduce the number of complaints and enhance the well-being of condominium owners by minimizing the time they spend addressing avoidable issues.

Furthermore, a set of financial objectives have been defined to be achieved over the lifetime of the project, namely:

- NPV should be greater than 0. Since this is a profit-orientated project, one of the objectives is to create wealth once the amount invested has been recovered.
- IRR should be higher than the discount rate for discounting future CF. In this way, the minimum required rate of return is met, and the project is viable, as the project's return exceeds the cost of capital.
- The PP should be lower than 3 years. To fulfil this objective, the company must generate value in a short space of time, so that it can recover its investment in 3 years, making it a less risky project.
- The Profitability Index should be equal to or above 5, which means a minimum profit of 4€ for each 1€ invested, which is a reasonable value for a project that aims to achieve sustainable returns.

8. Implementation Strategy

8.1 Service Proposal

The company proposed here aims to offer CM services with quality, professionalism and the necessary technology for the smooth running of activities.

In this sense, the customer is exposed to an easy and efficient experience right from the start, when they receive a personalised quote in just a few minutes to their email address. Many tasks, such as sending emails or reminders, will be automated and customer information will be intelligently mapped, saving managers time, and allowing them to focus on important issues that require their attention, rather than on non-essential tasks.

However, it is with the introduction of AI that the most effective results are expected. The chatbot - used via WhatsApp - provides 24/7 customer support and the database is configured to provide all the important information about the user as well as their history regarding payment of dues, contributions to the reserve fund, or other information of interest of the condominium owner. Additionally, the user can report problems directly to the chatbot, which will generate an automatic communication flow to the manager in charge.

8.2 Subscription Plans

The client will be able to choose between two price plans - Standard Plan and Excellence Plan. Both plans offer the basic features of:

- Specialised support, available 24/7.
- Administrative management.
- Financial management.
- Cleaning management.
- Building inspections (monthly or every fortnight, depending on the plan).
- Ordinary assembly.
- Drafting the condominium regulation and ensuring its fulfilment.
- Early voting online.
- Intelligent financial planning for condominium management.
- Ensure essential security and maintenance services.

Besides these commodities, the Excellence Plan also includes:

- Requests for quotes for building work.
- Construction management.
- One extraordinary assembly.

These plans will be sold online through the website at a price that ranges from 5€-9.5€ per owner, depending on the chosen plan, the number of fractions per building and other commodities of the condominium. The Standard Plan can be expected to vary between 5€-7€ per owner, while the Excellence Plan can be expected to range from 7€-9.5€ per owner.

8.3 Client Acquisition Process

The client acquisition process aims to convey the company's ease of communication, speed and transparency towards its customers, which other companies are unable to provide due to the lack of technology, skills, and, sometimes, professionalism. This process is an asset for the company, allowing it to distance itself from its competitors from the very first impression. The client acquisition process will therefore have the following stages:

Firstly, the condominium owner fills the subscription form with some personal details, such as name and email address, and some information about the condominium, such as the number of units and other amenities. They then receive a fully personalised quote for their building at the email address provided. To proceed, the proposal must be approved at the assembly, i.e. by the majority of the condominium owners.

After approval at the assembly, the condominium owner must confirm the data entered on the registration form, with the possibility of changing it, via a QR code embedded in the previous email. To finish the process, the client needs to submit the necessary documentation through a link sent to the email address of the owner responsible. Once the condominium manager has confirmed that all the documents are in order, both parties can sign the contract, also online.

8.4 Marketing

The primary goal of marketing strategy is to generate value for customers, which in turn allows the company to receive value from them. This demand identifying the target customer, by segmenting the market and determining which segments to prioritize and to focus on (Greene, 2022). We are looking at a B2C (Business to Consumer) strategy.

8.4.1 Segmentation, Targeting and Positioning

Companies are moving away from their traditional undifferentiated marketing strategies and adopting targeted marketing. The Segmentation, Targeting and Positioning (STP) model involves segmenting the market based on customer similarities and adapting products to meet the specific needs of these segments (Khandelwal et al., 2020).

Segmentation process involves dividing a diverse market into customer segments that share similar interests, desires, behaviours or responses to marketing to understand which segments to prioritise (Khandelwal et al., 2020).

Given the characteristics of the proposed service, it is possible to make a simple segmentation to delineate the target group, as follows:

- Demographic: Female/Male above 18 years old.
- Geographic: Lisbon area.
- Social: There are no restrictions to social classes.

Furthermore, the positioning strategy reveals how the brand is to be known. A good positioning strategy should include consumer expectations and a relevant element of differentiation that responds to a need or expectation of the target audience. It should also consider the competitor’s positioning by understanding how the target audience perceives the product, and potential product advantages (Mercator, 2018).

In this way, Customer Relationship Management (CRM) will play a crucial role in fostering stronger relationships with customers, and in ensuring faster and more efficient communication. CRM involves a company's concerted efforts to focus on retaining customers by systematically collecting all forms of customer interactions, whether through phone calls, emails, website feedback, or discussions with sales and marketing teams. CRM prioritizes understanding and valuing customers over focusing exclusively on the products a company wants to sell (Rahardja, 2019).

8.4.2 Digital Marketing

Google Campaigns and Google Ads will be used to increase the company's visibility, and the budget allocated to this strategy will be higher at the first stages of the company and decrease

with the time and customers reached. Google My Business (GMB) profiles will be also available on the internet to provide information regarding the company such as contact information, locations, and services, among others.

In addition, the website will be a key element of the marketing strategy, serving as the primary channel through which the customer acquires the service and engage with the brand. The website will function as a hub for conveying the company's dynamics, objectives and values, providing a clear access to the information with user-friendly features.

Furthermore, Search Engine Optimization (SEO) involves optimising various aspects of a website, such as its structure, content and communication strategies, and it is crucial to improve company's visibility in search engine results and make it more likely to be spotted by potential customers (Narayan Srivastava et al., 2017). In this sense, on-page SEO such as finding keywords with high volume, but low competition is one of the crucial steps of this strategy. These keywords may be related to the interests and needs of clients, competitors or categories related to CM. Also, off-page SEO such as backlinking or guest posting will be applied to increase the ranking on search engine results pages.

8.5 Distribution

The company will be based in Almirante Reis, São Jorge de Arroios, in the centre of Lisbon. However, after conducting online research, it was found that this location limits its visibility and reduces the likelihood of being found by potential customers searching for services throughout the entire Lisbon metropolitan area. To overcome this problem and extend its reach, the company is going to use virtual offices.

Through virtual offices, and for a monthly payment, the company can use the address of the subscribed space as its tax address and receive its correspondence or even use the space for meetings. The advantage of using a virtual office is that the company benefits from having more than one location, although the physical office is only one, providing greater proximity to the client and increasing visibility in the market.

Therefore, the chosen locations are strategically designed to bring the greatest possible advantage to the company - residential areas, with few green spaces and equidistant from each other. In this way, and after some research, the best options might be in Amadora and Montijo.

8.6 Financial Assumptions

This project has a lifetime of 5 years, but year 0 will also be considered in the analysis, since it is the year that the company was established and the year in which the greatest investment in Capital Expenditures (CAPEX) is made. The main goal of this initial year is to develop and experiment the chatbot to achieve a Minimum Viable Product (MVP) to go operational. By the beginning of 2025, the company is expected to start having customers.

The Value Added Tax (VAT) considered is 23%, applied to most goods or services that are not included in reduced VAT rates in Portugal. In the portuguese VAT Code, certain goods and services are exempt from the standard VAT rates and there are two reduced rates of 6% and 13% (Compliance, 2023).

8.6.1 Sales Forecast

The company offers a choice of two price plans. Given that many condominium owners are only looking for simple management that ensures the basic needs of the condominium, a conservative strategy has been adopted, with 90% of new condominiums opting for the Standard Plan and 10% for the Excellence Plan, over the project lifetime.

The sales forecast was calculated based on the following assumptions (Appendix 3):

- According to updated data from Pordata, there are around 276,274 condominiums in the Lisbon area.
- According to Informa D&B, in 2022, there were 937 active companies in the sector with a business volume of more than 0€.
- According to the data from the APEGAC market study mentioned in the market analysis, the following considerations were made: each company manages an average of 70 condominiums and the average number of units per building is 16.
- It is assumed that 50% of the condominiums in Lisbon manage and administer their own affairs, while the remaining 50% use specialised companies. There are therefore around 138,137 condominiums that use a company specialising in these services.
- For simplification, let's assume that the companies have an equal market share, so the number of buildings that the company would manage would be around 147.
- However, if each company manages an average of 70 condominiums, that means that half of them will not be able to manage 147 condominiums, so there are plenty of free

condominiums to manage. Since the aim of AICondo is to make managers 50% more productive, the company is expected to reach the target of 147 condominiums between the third and fourth year of the project and to continue expanding its business, reaching 229 condominiums in the final year of the project.

Regarding the growth rate for revenues, the following assumptions were made:

- The number of buildings under management will grow at a rate of 80% in year 1 and will progressively decrease, reaching a rate of 20% in the last year of the project (average rate of growth for a peer company).
- The average price per fraction and the average number of fractions per building will initially grow at a rate of 15% and 10%, respectively. As the company acquires more clients and buildings with more fractions, the average price per fraction will tend to rise, as will the average number of fractions per building.
- After one year, there is a certain number of clients who can terminate their contract with the company, known as churn clients. Churn value will be calculated based on a percentage of 5% of the accumulated buildings under management and will decrease and stabilise at 3%, following the behaviour of new buildings growth - it grows more at the start of the project and tends to decrease throughout its useful life.

8.6.2 Operational Costs

The company's cost structure differs from companies that sell products, since its main activity is selling services. Thus, instead of one of the main cost items being the Cost of Goods Sold and Materials Consumed (CMVMC), the predominant costs are related to human resources and investment.

8.6.2.1 Human resources

Initially, the team will be composed of the core elements needed to provide the services. Thus, in 2025, the company will have 4 employees (Appendix 4):

- 1 building manager (responsible for the management of clients and administration of the building).

- 1 IT developer (will work in partnership with an outsourced developer to create the chatbot and develop other automatizations).
- 1 product manager (development of strategies and search for potential partners).
- 1 leader (responsible for aligning and guiding the tasks of the team and ensuring the smooth running of activities, dealing with other relevant issues).

The company will bear in mind hiring young people, since they are more likely able to work in a fast-paced environment and open to new challenges. In this way, the company will apply for the *IEFP's ATIVAR* internships, which offer internship grants with a financial contribution of 65%, since the company has not benefited from previous support and has fewer than 10 employees.

The forecast for hiring employees will be the following (Appendix 4):

- By the end of 2025, and according to the forecast of new buildings for 2026, it will be necessary to hire a building manager.
- At the end of 2026, it is estimated that two more workers will be recruited, a building manager and a finance analyst for a full-time job, to start at the beginning of 2027.
- At the end of 2027, it will be necessary to hire another building manager and a product manager, to start at the beginning of 2028.
- At the end of 2028 and as the number of buildings under management increases, it will be crucial to employ an additional building manager, to start at the beginning of 2029.

The externalized team will be composed of an accounting, a marketing specialist to deal with marketing initiatives, such as assisting in website development, creating and managing Google Campaigns and Google Ads, SEO topics and optmising overall marketing strategies. In addition, a lawyer will be needed to deal with legal issues as well as an IT developer to work together with the internal employee.

To maintain workers' disposable income, the wage adjustment will be based on inflation (2%), which should remain constant from 2025 and for years to come.

8.6.2.2 External Supplies and Services

External Supplies and Services (ESS) can be divided into two categories as presented in Appendix 5: fixed costs and variable costs.

Fixed costs are mainly related to office expenses, such as mobile phone and internet bills, as they do not vary according to the level of activity. Until 2028, there will be no costs for renting

an office, as an owner's space will be used. However, as the team grows, it will be necessary to rent an office in the final year of the project. The new space will be located in Campo Grande, Lisboa.

On the other hand, variable costs include marketing costs (Appendix 6), transportation costs to buildings, and others, which will vary as the company grows. Moreover, outsourcing expenditures are included in this item.

8.6.3 Capital Expenditures

The investment made in CAPEX will be mostly allocated in the year of investment - considered year 0 - before the start of activity. Subsequently, there will be more investment in every year of activity, due to operational needs and the increase in the number of company employees.

Therefore, CAPEX will include Tangible Assets such as office equipment and materials and Intangible Assets such as Chatbot and R&D (Appendix 7). Both items will be amortized according to the straight-line depreciation method, in which the asset is depreciated constantly (by equal amounts) over its useful life (Appendix 8). With the value of the investment in the assets and their respective depreciation, it was possible to calculate the value of the assets for each year (Appendix 9).

8.6.3.1 Chatbot

According to the information gathered through research, the aim will be to develop a chatbot powered by large-scale language models, to provide personalised interactions and perform basic tasks correctly, rather than using rule-based models, which limit the field of response to specific questions. The ability to integrate with WhatsApp and other platforms allows access to up-to-date information, which is essential for effective use. In addition, a WhatsApp chatbot is characterised by its scalability of use, allowing simultaneous use by several users and the possibility of scaling the chatbot to other channels.

Since the chatbot intends to handle personal information from its users, it must comply with the General Data Protection Regulation (GDPR) orientated towards privacy and data protection, which impacts individuals and companies in the EU and the European Economic Area (EEA). In this way, the user must be duly informed, and the collection of personal data must be carried out transparently and with adequate legal justification.

The platforms the company owns for chatbot development, customer management and intelligent planning include: Botpress, ChatGPT, Zapier, Namecheap, Airtable and Stack AI. Additionally, chatbot development costs include design, technical development of system integration, language improvements, technology, integration channels and additional labour, to work in partnership with the IT developer.

Botpress is an AI agent platform designed to build chatbots and conversational interfaces. The botpress provides a visual flow builder for conversation flows and supports integration with multiple channels like WhatsApp, Facebook Messenger, etc. ChatGPT will be integrated into Botpress workflows and may incur additional usage costs based on API (Application Programming Interface) requests and the volume of interactions required. Stack AI has a broader range of AI applications, not only conversational AI, but its usefulness will also be tested. Zapier will be used to integrate applications into automated flows such as sending emails or reminders for pending issues. Namecheap will be useful for domain registration and email hosting, and Airtable, which is a hybrid of a spreadsheet and a database, will be used to organise and manage customer information.

These costs are expected to continue throughout the project's lifetime (Appendix 10).

8.6.3.2 Website

The success of a company's virtual presence relies on careful financial planning and the strategic allocation of resources to key areas. In terms of the website, and its setup in general, financial resources will be allocated to platforms such as Cloudflare, Namecheap, WordPress and Elementor, as well as minor website design and optimisation costs. The costs of the website will remain constant over the years, except in the year of its development, when the costs incurred will be higher (Appendix 11).

8.6.4 Financing Plan

The most commonly used banking products are bank loans, credit lines and leasing. The company will take out a medium-term loan in the first year of the project (2025) to cover initial operating costs. The loan is called "*Crédito Avançar*" and is taken out at Millenium Bank.

According to the company's needs, the amount of the loan in the first year will be €25,000 at an annual nominal rate of 6% and an annual effective rate of 7.47%, payable monthly for 2

years, totaling 24 capital repayment periods with an installment value of 1,108.02€ each. The CF statement for the loan can be consulted in Appendix 12.

8.6.5 Weighted Average Cost of Capital

The Capital Asset Pricing Model (CAPM) will be used to determine the cost of capital of this project, in order to equate the future CF with their present value. In this way, the following variables were considered:

- The Risk-free Interest Rate (R_f) applied is the Portugal´s 10-year bond yield, which is 2.79%.
- The Market Risk Premium ($R_m - R_f$) is 5.57%, according to the Damodaran's information as of May 2024 for Portugal.
- The Beta Levered (B_L) and the Beta Unlevered (β_U) for the Real Estate (Operations & Services) sector for Europe is known and will therefore be the industry considered[2]. Thus, B_L will be 0.83 and β_U will be 0.38.
- It will be considered a Risk Spread (RS) of 5% as an additional indicator to assess the risk associated with the project, reflecting not only the risk of investing in Portugal, but also accounting for the innovation, technology and scalability that characterize the project, factors that could potentially lead to higher returns.
- The Cost of Equity (R_e) will be given by the following formula:

$$R_e = R_f + \left(R_m - R_f\right) \times B_L + \mathrm{RS} \quad (8.1)$$

According to the CAPM model above, the R_e for the first and second year of the project will be 12.41%, reflecting company's financial leverage.

$$R_e = R_f + \left(R_m - R_f\right) \times B_U + \mathrm{RS} \quad (8.2)$$

After the second year, the company will have no debt and therefore the B_U will be considered in the CAPM model. Therefore, the R_e will be 9.91% for the remaining years of the project.

[2] The portuguese government portal considers the activity of managing condominiums to belong to the sector of real estate activities for third parties.

- The Cost of Debt (R_d) will be calculated based on the effective cost of the loan. Since this is the company's only form of debt, R_d will be 7.57% for the first and second years of the project and 0% for the remaining years.
- Corporate income tax (t) for mainland Portugal is 21%.

Based on the following formula, the WACC was calculated for each year of the project and will be presented below:

$$WACC = \left(R_e \times \frac{E}{D+E}\right) + \left(R_d \times \frac{D}{D+E}\right)(1-t) \quad (8.3)$$

Table 8-1: *WACC calculation.*

Year	2025	2026	2027	2028	2029
WACC					
Risk Free Rate (R_f)	2.79%	2.79%	2.79%	2.79%	2.79%
Market Risk Premium ($R_m - R_f$)	5.57%	5.57%	5.57%	5.57%	5.57%
Beta Levered (β_L)	0.83	0.83	0.83	0.83	0.83
Beta Unlevered (β_U)	0.38	0.38	0.38	0.38	0.38
Debt (D)	25,000 €	12,874 €	- €	- €	- €
Equity (E)	30,000 €	30,000 €	30,000 €	30,000 €	30,000 €
D/E	0.83	0.43	0.00	0.00	0.00
Corporate Tax (t)	21%	21%	21%	21%	21%
Risk Spread (RS)	5%	5%	5%	5%	5%
Cost of Equity (R_e)	12.41%	12.41%	9.91%	9.91%	9.91%
Cost of Debt (R_d)	7.57%	7.57%	0%	0%	0%
Expected WACC	**9.49%**	**10.48%**	**9.91%**	**9.91%**	**9.91%**
Average WACC	**9.94%**				

Source: *Author.*

9. Financial Evaluation

9.1 Income Statement

The Profit and Loss Account shows significant variations over the years, marked above all by the evolution of sales and labor costs, as can be seen in the Appendix 13.

The company has a positive Gross Margin (GM) in the first year of activity, which means that the company is selling its services above its direct costs and that the business can survive. However, it has a low but still negative Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA) and therefore will only start generating cash from the second year of activity.

As for the Net Income (NI), it grows exponentially over the five years of the project, since the exponential increase in income is not accompanied by a substantial increase in operating costs, with labor costs and depreciation costs being the items that have changed the most.

9.2 Working Capital Requirements

Working Capital (WC) requirements enable short-term financial resources to be balanced with operational needs. Of particular note is the Accounts Receivables (AR) item, with significant figures over the years, where the defined collection period was 54 days, reflecting the sector average and a more conservative approach. Also in short-term needs, the VAT (23%) to be recovered on the investment was calculated.

On the other hand, the payment period considered for Accounts Payables (AP) was 45 days, based on fixed and variable ESS, since the value of CMVMC is nil. The VAT (23%) was applied to the sales and AP headings. Additionally, the charges that the company must pay to the state, in addition to the aforementioned VAT and the corporate income tax, relate to labor costs, such as social security (23.75%) and individual income tax withheld at source (11%).

WC needs have shown an upward trend over the years, with the value of short-term needs exceeding resources in every year of the project (Appendix 14). Thus, there is a positive variation in WC Needs.

9.3 Balance Sheet

Throughout the project, it is possible to make a detailed analysis of its financial structure, showing the main trends in the evolution of Equity, Liabilities and Assets.

On one side of the equation, the Assets showing the greatest growth are Intangible Fixed Assets, due to investment in R&D over the years, Cash and Cash Equivalents following the Financial Plan, and Surplus Cash.

On the other side of the equation, the Equity item has a greater weight than the Liabilities item, due in particular to the growth in NI and Retained Earnings, the latter not growing so sharply due to the management measure applied from the third year of the project - dividend distribution (15% in the third year and 30% in the fourth and fifth years). Liabilities are not as significant, since only one medium-term loan was taken out in the first year of activity to cover operating costs. Apart from this, the most relevant item is taxes payable as shown in the Appendix 15.

The elaboration of the financial plan was important in determining some balance sheet items. Financial resources proved to be greater than financial needs throughout the project, with the need to take out a loan in the first year to cover fixed capital expenditure and the negative EBITDA figure. The resources applied were distributed in employee rewards, R&D, financial investments, and the remainder was allocated to cash and cash equivalents (Appendix 16).

9.4 Cash Flows Map

The CF Map allows us to derive some important conclusions for the financial evaluation of this project. The Operating Cash Flow (OCF) is positive from the second year of activity onwards and is a robust indicator, given that the Exploration Cash Flow for the same year remains positive. Both CF show substantial growth in subsequent years.

Afterwards, by analysing the Net Cash Flow, i.e. the Free Cash Flow to the Firm (FCFF), it is also possible to highlight the turnaround from the first year to the second year, demonstrating the company's ability to generate CF and recover its initial investment in a short period.

For the DCF calculation, a WACC of 9.94% was considered, based on the average WACC for the five years of the project. The DCFs were calculated based on the FCFF according to the following formula:

$$DCF = \sum_{t=1}^{n} \frac{\boldsymbol{FCFF\ (t)}}{\boldsymbol{(1 + WACC)^t}} \quad (9.1)$$

Following the behaviour of the FCFF, the DCF is positive from the second year of activity and grows exponentially. The accumulated DCFs are only positive from the fourth year onwards, which shows the length of time it takes for the project to start generating enough income to offset the initial investment and associated costs. Thus, in the initial years, the present value of future CF is lower than the costs, which indicates that the project has not yet reached the point of financial equilibrium and only begins to be financially advantageous from the fourth year onwards.

Table 9-1: *Cash Flow Map.*

Cash Flow Map	**0**	**1**	**2**	**3**	**4**	**5**
EBIT (1-t)	- €	- 8,587 €	31,089 €	93,935 €	239,212 €	442,881 €
Depreciation + Amorizations	- €	4,089 €	5,674 €	9,472 €	14,561 €	22,120 €
Operational Cash flow	**- €**	**- 4,498 €**	**36,763 €**	**103,407 €**	**253,772 €**	**465,002 €**
WC	359 €	3,007 €	16,991 €	41,073 €	78,565 €	125,646 €
WC Investment	- €	2,648 €	13,984 €	24,082 €	37,491 €	47,081 €
Exploration Cash Flow	**- €**	**- 7,146 €**	**22,779 €**	**79,325 €**	**216,281 €**	**417,920 €**
Investment in CAPEX	21,518 €	17,498 €	15,410 €	37,086 €	50,434 €	73,806 €
Residual Value	- €	- €	- €	- €	- €	- €
Net Cash Flow	**- 21,518 €**	**- 24,645 €**	**7,369 €**	**42,239 €**	**165,847 €**	**344,114 €**
Accumulated Net Cash Flow	- 21,518 €	- 46,163 €	- 38,794 €	3,445 €	169,291 €	513,405 €

Discounted Cash Flow	**- 21,518 €**	**- 22,417 €**	**6,097 €**	**31,788 €**	**113,530 €**	**214,269 €**
Accumulated Discounted Cash Flow	- 21,518 €	- 43,935 €	- 37,838 €	- 6,050 €	107,480 €	321,749 €

Source: *Author.*

9.5 Evaluation Criteria

Basen on the calculations above, it is possible to establish evaluation criteria for this project (Appendix 14).

The NPV has a positive value of approximately 321,749€, the IRR is 90.49% and the PP is around 3 years. Besides this, the Profitability Index is 15.952, meaning that the project will generate a profit of 14.952€ for each 1€ invested. Without compromising the objectives set out above, AICondo proves to be an attractive and viable project.

9.6 Profitability Ratios

Profitability indicators make it possible to draw conclusions that the Income Statement alone is unable to provide and are important financial metrics for assessing the company's performance. The first year of activity reveals a precarious financial situation, where the value of sales does not translate into profitability gains. However, from the second year onwards, the financial and operating leverage ratios are low, which means that changes in the company's financial structure or operating expenses will not have a substantial impact on the profitability of the business (Appendix 18).

The Return on Assets (ROA) shows high values over the project, reaching its maximum (79%) in the fourth year of activity. The ROA is higher than the R_d in all years, demonstrating a positive financial leverage.

The Return on Invested Capital (ROIC) is made up of the Net Operating Profit Less Adjusted Taxes (NOPLAT), which represents the NI that the company would have if it were entirely financed by Equity, and the Invested Capital (IC), which is given by the WC Requirements and the Operating Non-Current Assets. It shows continuous growth over all the years, indicating that the company generates profit far in excess of the capital invested.

The Return on Equity (ROE) is a shareholder perspective in which ROE shows the return on investment. In the first year ROE is negative, but in the long term it shows high returns.

Finally, the Return on Sales (ROS) reflects the company's efficiency in generating profit in relation to its operating expenses and is therefore the indicator that grows the least in percentage terms, but which proves to be high throughout the project, providing an important safety margin.

9.7 Sensitivity Analysis

Sensitivity analysis seeks to understand how the project's main variables, such as sales or fixed costs, affect critical results such as NPV and IRR. This approach isolates one or two variables at a time, holding all other factors constant, and allowing for a clearer understanding of the project's overall performance.

The variables considered for the sensitivity analysis were Selling Price (Appendix 19), New Buildings (Appendix 20), Labor costs (Appendix 21) and the Discount rate (Appendix 22), with variations of around 10%. The variation in Selling Price and New Buildings (Appendix 23) was also

analysed simultaneously and the values for the last year of the project were considered, since the project is fully implemented, and the growth of these variables tends to stabilise.

9.8 Scenario Analysis

To assess the performance of the business model under various conditions, two different scenarios were developed, including positive and negative scenarios.

In the pessimistic scenario, the number of new buildings will be negatively impacted, as they will have little incentive to migrate to another company, given that it is not an essential service. Consequently, the growth rate of new customers will be reduced by 50% in all the years of the project's lifespan, resulting in a significant decrease in NPV (37,861€) and IRR (26,24%).

On the other hand, in the optimistic scenario, the same variable will be analysed based on customer dissatisfaction with the current experience, which will lead them to migrate to a company offering more advanced and efficient services such as AICondo. In this case, the growth rate of new customers will increase by 10% over the years of the project, resulting in an increase in both NPV (393,597€) and IRR (100%).

Another alternative scenario consists of reducing the time it takes to collect from AR, an optimistic but more realistic scenario for the future, since it can be expected that as customer confidence increases, this will be reflected in a lower level of non-compliance. So instead of the 54 days used in the realistic scenario, this figure is reduced to 30 days and the optimistic scenario shows that there is a reduction in WC Needs, which leads to better CF management and greater profitability. In fact, the NPV (368,414€) shows an increase, as does the IRR (101.82%).

The opposite scenario consists of increasing the collection time from AR, representing a more pessimistic outlook for the future if customer confidence weakens or if market conditions lead to higher levels of default. Thus, with a payment period of 75 days, WC Requirements increase and there will be a greater dependence on external financing to meet current needs. Consequently, the NPV (280,189€) decreases, and the IRR (80%) also drops, reflecting a less favorable financial outlook for the project.

10. Conclusion

In today's globalized and rapidly evolving technological landscape, having access to complete and accurate information is essential for making well-informed business decisions. In fact, in some sectors, companies have been fast seizing new business opportunities by introducing innovative products and services, capitalizing on their agility to thrive in evolving sectors.

Through the literature review, it was possible to draw some important conclusions. Among these findings, technology is widely recognized as a critical factor in improving operations, profitability and growth in various sectors, playing a key role in maintaining competitiveness in modern business environments. However, despite the proven positive influence of technology in companies, the CM sector is still lagging far behind in terms of technological evolution, offering outdated services. Therefore, the question arose: why do so many companies in this sector continue to operate traditionally, with few embracing the technological transition?

Without a concrete answer to this question, it was possible to draw some evidence such as: lack of regulation and professionalism, as well as the absence of efficient working methods.

In this scenario, the author considers that there are economic conditions for the implementation of this project, whose innovation comes from incorporating technology and AI through internal professionals and outsourcing, as well as through assertive communication strategies.

Socially, problems may arise, namely the ageing population, low technological literacy, and the prevailing social perception that this is not an essential service. However, given the ease of use and communication of this project, as well as the focus on customer needs, the author believes in the project's alignment with social needs.

With the emerging reports and journal articles in this area and given the market trends and market drivers developed in this work, the author believes that the CM sector is approaching the technological transition.

As a final note, the limitations of this study relate to the scarcity of literature in the area and of data on companies, so the author proposes the need for future research on this subject.

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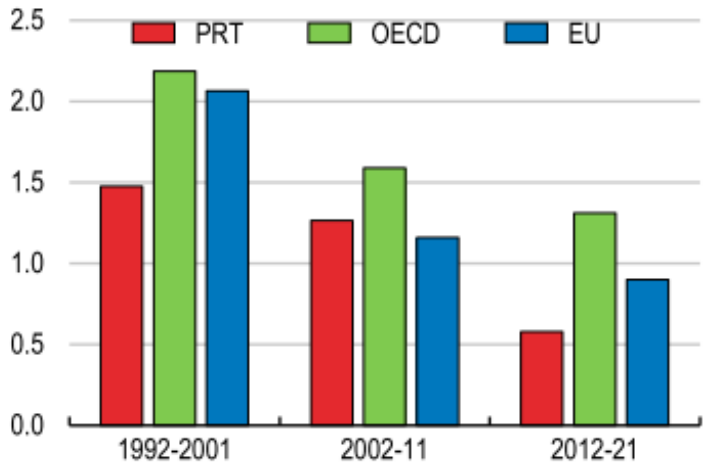
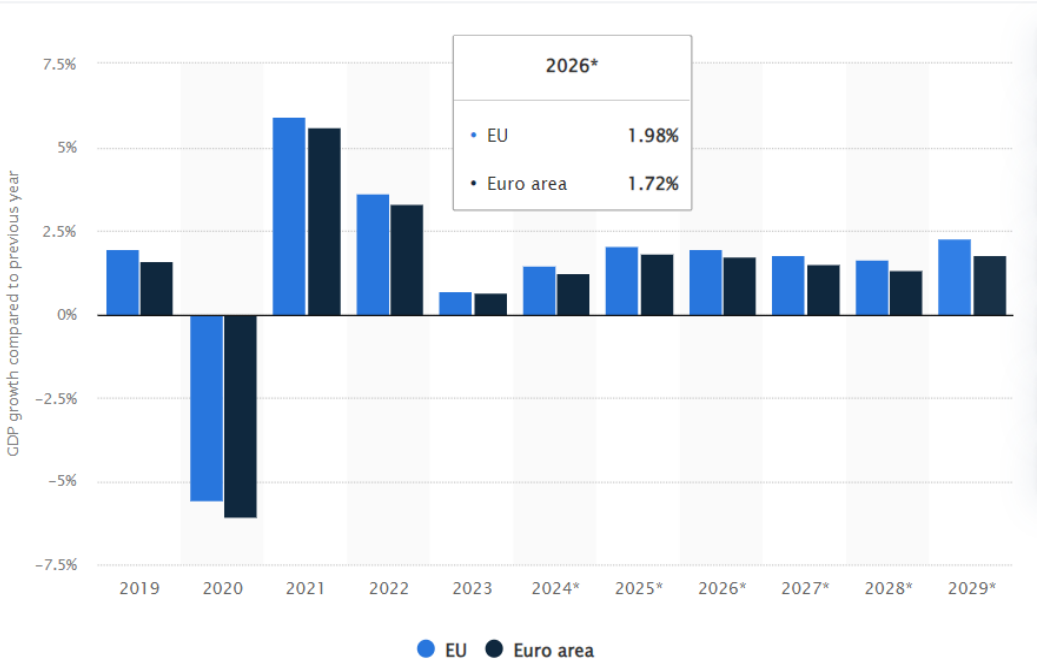
Appendixes

Appendix 1: *Strengthening productivity is key to long-term growth.*



Source: *OECD Productivity indicators*.

Appendix 2: *Growth of the real Gross Domestic Product (GDP) in the EU and Euro Area from 2019 to 2029.*



Source: *Statista, 2024.*

Appendix 3: *Revenues Forecast.*

Year	2025	2026	2027	2028	2029
Sales Distribution					
Standard Plan	90%	90%	90%	90%	90%
Premium Plan	10%	10%	10%	10%	10%
Revenues					
New Revenue					
New buildings	48	86	137	191	229
Average growth rate	80%	60%	40%	20%	20%
Average price per fraction	5.80 €	5.93 €	5.93 €	5.93 €	5.93 €
Average growth rate	15%	15%	15%	15%	15%
Average number of fractions per building	16	18	19	21	23
Average growth rate	10%	10%	10%	10%	10%
New fractions	768	1513	2652	4067	5364
Total New Revenue	**53,453 €**	**107,620 €**	**188,637 €**	**289,286 €**	**381,541 €**
New Revenue growth rate		50.33%	42.95%	34.79%	24.18%
Churn buildings					
Number of churn buildings	0	2	6	11	13
Rate of churn	5%	5%	5%	4%	3%
Total Churn outflow	**- €**	**209 €**	**689 €**	**1,389 €**	**1,805 €**
Total New Revenue	**53,453 €**	**107,411 €**	**187,948 €**	**287,897 €**	**379,736 €**
Revenues Accumulated					
Buildings undermanagement					
Buildings accumulated	48	134	223	328	420
Fractions accumulated	768	2282	4934	9001	14366
Total Revenue Accumulated with VAT	**53,453 €**	**160,864 €**	**348,812 €**	**636,709 €**	**1,016,445 €**
Revenue Accumulated growth rate		66.77%	53.88%	45.22%	37.36%
VAT 23%	9,995 €	30,080 €	65,225 €	119,059 €	190,067 €
Total Revenues Accumulated without VAT	**43,458 €**	**130,784 €**	**283,587 €**	**517,650 €**	**826,378 €**

Source: *Author.*

Appendix 4: *Labor costs.*

Year	2025	2026	2027	2028	2029
Human Resources					
Full time employees					
Building manager	1	2	3	4	5
IT developer	1	1	1	1	1
Product manager	1	1	1	2	2
Leader	1	1	1	1	1
Finance analyst	0	0	1	1	1
Number of full time employees	**4**	**5**	**7**	**9**	**10**
Full-time wages					
Building manager	15,109 €	32,044 €	48,066 €	64,089 €	80,111 €
IT developer	- €	21,848 €	21,848 €	21,848 €	21,848 €
Product manager	15,109 €	16,022 €	16,022 €	32,044 €	32,044 €
Leader	14,308 €	14,566 €	14,566 €	14,566 €	14,566 €
Finance analyst	- €	- €	16,022 €	16,022 €	16,022 €
Total full-time wages	**44,526 €**	**84,480 €**	**116,525 €**	**148,569 €**	**164,591 €**
Food allowance					
Building manager	1,846 €	3,693 €	5,539 €	7,386 €	9,232 €
IT developer	1,846 €	1,846 €	1,846 €	1,846 €	1,846 €
Product manager	1,846 €	1,846 €	1,846 €	3,693 €	3,693 €
Leader	1,846 €	1,846 €	1,846 €	1,846 €	1,846 €
Finance analyst	- €	- €	1,846 €	1,846 €	1,846 €
Total food allowance costs	**7,386 €**	**9,232 €**	**12,925 €**	**16,618 €**	**18,465 €**
Social Security					
Building manager	305 €	610 €	914 €	1,219 €	1,524 €
IT developer	416 €	416 €	416 €	416 €	416 €
Product manager	305 €	305 €	305 €	610 €	610 €
Leader	277 €	277 €	277 €	277 €	277 €
Finance analyst	- €	- €	305 €	305 €	305 €
Total Social Security subsidies	**1,302 €**	**1,607 €**	**2,217 €**	**2,826 €**	**3,131 €**
Labour accident insurance					
Building manager	13 €	26 €	39 €	51 €	64 €
IT developer	18 €	18 €	18 €	18 €	18 €
Product manager	13 €	13 €	13 €	26 €	26 €
Leader	12 €	12 €	12 €	12 €	12 €
Finance analyst	- €	- €	13 €	13 €	13 €
Total labor insurance costs	**55 €**	**68 €**	**93 €**	**119 €**	**132 €**
Total Labor costs	**53,269 €**	**95,388 €**	**131,760 €**	**168,133 €**	**186,319 €**

State Subsidies	23,443 €	23,443 €

Source: *Author.*

Appendix 5: *External Supplies and Services.*

Year	2024	2025	2026	2027	2028	2029
External Supplies and Services (ESS)						
ESS Fixed						
Office rent		- €	- €	- €	- €	14,400 €
Internet and mobile phone		444 €	444 €	444 €	444 €	888 €
Water		300 €	300 €	300 €	300 €	300 €
Electricity		960 €	960 €	960 €	960 €	960 €
Virtual offices		456 €	456 €	456 €	456 €	456 €
Cleaning		480 €	480 €	480 €	480 €	480 €
Licenses		- €	- €	- €	- €	- €
Company registration		360 €	- €	- €	- €	- €
ESS Fixed		**3,000 €**	**2,640 €**	**2,640 €**	**2,640 €**	**17,484 €**
ESS Variable						
Transportations		2,142 €	2,142 €	4,284 €	4,284 €	8,568 €
Motorbike maintenance		600 €	600 €	1,200 €	1,200 €	1,800 €
Tools and utensils		250 €	400 €	400 €	600 €	800 €
Marketing		2,580 €	3,940 €	3,070 €	3,070 €	3,070 €
CRM		240 €	240 €	240 €	240 €	240 €
Outsourcing Lawyer		3,600 €	1,800 €	1,800 €	1,800 €	1,800 €
Outsorcing Accounting		4,800 €	1,200 €	1,200 €	1,200 €	1,200 €
Other partners		1,200 €	850 €	850 €	1,790 €	2,600 €
ESS Variable		**15,412 €**	**11,172 €**	**13,044 €**	**14,184 €**	**20,078 €**
Total ESS		**18,412 €**	**13,812 €**	**15,684 €**	**16,824 €**	**37,562 €**
VAT	23%	4,235 €	3,177 €	3,607 €	3,869 €	8,639 €
Total ESS with VAT		**22,647 €**	**16,989 €**	**19,291 €**	**20,693 €**	**46,201 €**

Source: *Author.*

Appendix 6: *Auxiliar marketing costs.*

Year	2025	2026	2027	2028	2029
Marketing					
Press release	900 €	900 €	900 €	900 €	900 €
Influencers	- €	1,200 €	800 €	800 €	400 €
Flyers	- €	500 €	500 €	500 €	520 €
Google Ads	1,080 €	740 €	270 €	270 €	270 €
Google Campaigns	120 €	120 €	120 €	120 €	120 €
Other costs	480 €	480 €	480 €	480 €	860 €
Total marketing costs	**2,580 €**	**3,940 €**	**3,070 €**	**3,070 €**	**3,070 €**

Source: *Author.*

Appendix 7: *Investment in Capital Expenditure.*

Year		2024	2025	2026	2027	2028	2029
Investment - CAPEX							
Tangible Assets							
Desks		499 €	- €	- €	350 €	- €	1,100 €
Chairs		150 €	- €	- €	180 €	- €	350 €
Computers		895 €	895 €	448 €	895 €	448 €	895 €
Coffee machine		79 €	- €	- €	- €	- €	- €
Microwave		99 €	- €	- €	- €	- €	- €
Office materials		360 €	140 €	140 €	140 €	140 €	140 €
Motorbike		2,699 €	2,699 €	- €	2,699 €	2,699 €	5,398 €
Total Tangible Assets		**4,781 €**	**3,734 €**	**588 €**	**4,264 €**	**3,287 €**	**7,883 €**
Intagible Assets							
Website		2,812 €	2,112 €	2,112 €	2,112 €	2,112 €	2,112 €
Chatbot		13,925 €	11,652 €	10,002 €	10,002 €	6,702 €	6,702 €
R&D		- €	- €	2,708 €	20,709 €	38,333 €	57,109 €
Total Intangible Assets		**16,737 €**	**13,764 €**	**14,822 €**	**32,823 €**	**47,148 €**	**65,923 €**
Total CAPEX		**21,518 €**	**17,498 €**	**15,410 €**	**37,086 €**	**50,434 €**	**73,806 €**
VAT	23%	1,100 €	859 €	135 €	981 €	756 €	1,813 €
Total CAPEX with VAT		**22,618 €**	**18,357 €**	**15,545 €**	**38,067 €**	**51,190 €**	**75,619 €**

Source: *Author.*

Appendix 8: *Capital Expenditure Depreciations.*

Year		2025	2026	2027	2028	2029
Depreciations						
Tangible Assets Depreciations	Amortization rate					
Desks	10%	50 €	50 €	85 €	85 €	195 €
Chairs	10%	15 €	15 €	33 €	33 €	68 €
Computers	20%	358 €	448 €	627 €	716 €	985 €
Coffee machine	20%	16 €	16 €	16 €	16 €	16 €
Microwave	10%	10 €	10 €	10 €	10 €	10 €
Office materials	10%	50 €	64 €	78 €	92 €	106 €
Motorbike	10%	540 €	540 €	810 €	1,080 €	1,619 €
Total Tangible Assets Depreciations		**1,038 €**	**1,142 €**	**1,658 €**	**2,031 €**	**2,998 €**
Intangible Assets Depreciations	Amortization rate					
Website	10%	492 €	704 €	915 €	1,126 €	1,337 €
Chatbot	10%	2,558 €	3,558 €	4,558 €	5,228 €	5,899 €
R&D	10%	- €	271 €	2,342 €	6,175 €	11,886 €
Total Intangible Assets Depreciations		**3,050 €**	**4,532 €**	**7,815 €**	**12,529 €**	**19,122 €**
Total Assets Depreciations		**4,089 €**	**5,674 €**	**9,472 €**	**14,561 €**	**22,120 €**

Source: *Author.*

Appendix 9: *Assets' Value.*

Year	2024	2025	2026	2027	2028	2029
Value of Assets						
Fixed Tangible Assets						
Value at the start of the period	4,781 €	4,781 €	7,477 €	6,922 €	9,528 €	10,783 €
Additional investment	0 €	3,734 €	588 €	4,264 €	3,287 €	7,883 €
Less depreciations	0 €	1,038 €	1,142 €	1,658 €	2,031 €	2,998 €
Value at the end of the period	**4,781 €**	**7,477 €**	**6,922 €**	**9,528 €**	**10,783 €**	**15,668 €**
Fixed Intangible Assets						
Value at the start of the period	16,737 €	16,737 €	27,452 €	37,742 €	62,750 €	97,368 €
Additional investment	0 €	13,764 €	14,822 €	32,823 €	47,148 €	65,923 €
Less depreciations	0 €	3,050 €	4,532 €	7,815 €	12,529 €	19,122 €
Value at the end of the period	**16,737 €**	**27,452 €**	**37,742 €**	**62,750 €**	**97,368 €**	**144,169 €**

Source: *Author.*

Appendix 10: *Chatbot costs.*

Year	2024	2025	2026	2027	2028	2029
Chatbot						
Development/Plataforms costs						
Zapier	780 €	780 €	780 €	780 €	780 €	780 €
Stack AI	- €	- €	- €	- €	- €	- €
ChatGPT	240 €	240 €	240 €	240 €	240 €	240 €
Botpress	3,600 €	3,600 €	3,600 €	3,600 €	3,600 €	3,600 €
Namecheap	155 €	82 €	82 €	82 €	82 €	82 €
Developer	8,800 €	6,600 €	4,950 €	4,950 €	1,650 €	1,650 €
Other costs	350 €	350 €	350 €	350 €	350 €	350 €
Total costs	**13,925 €**	**11,652 €**	**10,002 €**	**10,002 €**	**6,702 €**	**6,702 €**

Source: *Author.*

Appendix 11: *Auxiliar website costs.*

Year	2024	2025	2026	2027	2028	2029
Website						
Development/Maintenance costs						
Google Workspace	141.00 €	141.00 €	141.00 €	141.00 €	141.00 €	141.00 €
Cloudflare	240 €	240 €	240 €	240 €	240 €	240 €
Wordpress	300 €	300 €	300 €	300 €	300 €	300 €
Elementor	120 €	120 €	120 €	120 €	120 €	120 €
Namecheap	121 €	121 €	121 €	121 €	121 €	121 €
Flaticon	90 €	90 €	90 €	90 €	90 €	90 €
Fillout	180 €	180 €	180 €	180 €	180 €	180 €
Freelancer	1,500 €	800 €	800 €	800 €	800 €	800 €
Other costs	120 €	120 €	120 €	120 €	120 €	120 €
Total costs	**2,812 €**	**2,112 €**	**2,112 €**	**2,112 €**	**2,112 €**	**2,112 €**

Source: *Author.*

Appendix 12: *Financing Plan.*

Year	2025											
Month	1	2	3	4	5	6	7	8	9	10	11	12
Loan												
Capital Outstanding	25,000 €	24,017 €	23,029 €	22,036 €	21,038 €	20,036 €	19,028 €	18,015 €	16,997 €	15,974 €	14,946 €	13,912 €
Amortization of Capital	983 €	988 €	993 €	998 €	1,003 €	1,008 €	1,013 €	1,018 €	1,023 €	1,028 €	1,033 €	1,038 €
Interest	125 €	120 €	115 €	110 €	105 €	100 €	95 €	90 €	85 €	80 €	75 €	70 €
Expenses												
Fees during the loan	128 €	3 €	3 €	3 €	3 €	3 €	3 €	3 €	3 €	3 €	3 €	260 €
Stamp tax	10 €	10 €	9 €	9 €	8 €	8 €	8 €	7 €	7 €	6 €	6 €	6 €
Financial expenses	263 €	133 €	127 €	122 €	117 €	111 €	106 €	100 €	95 €	89 €	84 €	336 €

Year	2026											
Month	1	2	3	4	5	6	7	8	9	10	11	12
Loan												
Capital outstanding	12,874 €	11,830 €	10,781 €	9,727 €	8,668 €	7,603 €	6,533 €	5,458 €	4,377 €	3,291 €	2,199 €	1,102 €
Amortization of Capital	1,044 €	1,049 €	1,054 €	1,059 €	1,065 €	1,070 €	1,075 €	1,081 €	1,086 €	1,092 €	1,097 €	1,103 €
Interest	64 €	59 €	54 €	49 €	43 €	38 €	33 €	27 €	22 €	16 €	11 €	6 €
Expenses												
Fees during the loan	3 €	3 €	3 €	3 €	3 €	3 €	3 €	3 €	3 €	3 €	3 €	260 €
Stamp tax	5 €	5 €	4 €	4 €	3 €	3 €	3 €	2 €	2 €	1 €	1 €	0 €
Financial expenses	73 €	67 €	61 €	56 €	50 €	44 €	38 €	32 €	27 €	21 €	15 €	266 €

Source: *Author.*

Appendix 13: *Income Statement.*

Year	2024	2025	2026	2027	2028	2029
Previsional Profit and Loss						
Sales and services rendered	- €	43,458 €	130,784 €	283,587 €	517,650 €	826,378 €
Operating subsidies	- €	23,443 €	23,443 €	- €	- €	- €
Work for the entity	- €	- €	- €	- €	- €	- €
Cost of goods sold, materials consumed	- €	- €	- €	- €	- €	- €
Gross Sales Margin	**- €**	**66,901 €**	**154,227 €**	**283,587 €**	**517,650 €**	**826,378 €**
ESS	- €	18,412 €	13,812 €	15,684 €	16,824 €	37,562 €
Labor costs	- €	53,269 €	95,388 €	131,760 €	168,133 €	186,319 €
Other expenses and losses	- €	2,000 €	- €	7,766 €	15,333 €	19,768 €
EBITDA	**- €**	**- 6,781 €**	**45,027 €**	**128,377 €**	**317,360 €**	**582,729 €**
Depreciation expenses	- €	4,089 €	5,674 €	9,472 €	14,561 €	22,120 €
Amortization expenses	- €	- €	- €	- €	- €	- €
EBIT	**- €**	**- 10,869 €**	**39,353 €**	**118,905 €**	**302,799 €**	**560,609 €**
Interest and similar income earned	- €	- €	- €	- €	148 €	635 €
Interest and similar costs incurred	- €	- €	1,682 €	749 €	- €	- €
EBT	**- €**	**- 10,869 €**	**37,671 €**	**118,155 €**	**302,947 €**	**561,244 €**
Income tax for the period	- €	- €	7,911 €	24,813 €	63,619 €	117,861 €
Net Income	**- €**	**- 10,869 €**	**29,760 €**	**93,343 €**	**239,328 €**	**443,383 €**
Retained Earnings	-	10,869 €	29,760 €	79,341 €	167,530 €	310,368 €
Dividends	- €	- €	- €	14,001 €	71,799 €	133,015 €

Source: *Author.*

Appendix 14: *Working Capital Requirements.*

Working Capital Requirements							
Current Assets							
Accounts Receivables	54	- €	8,018 €	24,130 €	52,322 €	95,506 €	152,467 €
Inventories	0	- €	- €	- €	- €	- €	- €
VAT to recover	23%	359 €	295 €	203 €	273 €	191 €	280 €
Total Current Needs		**359 €**	**8,313 €**	**24,333 €**	**52,595 €**	**95,698 €**	**152,746 €**
Current Liabilities							
Suppliers	45	- €	2,831 €	2,124 €	2,411 €	2,587 €	5,775 €
VAT to pay	23%	- €	1,186 €	2,771 €	5,736 €	10,244 €	16,559 €
Social Security	23.75%	- €	881 €	1,672 €	2,306 €	2,940 €	3,258 €
IRS	11%	- €	408 €	774 €	1,068 €	1,362 €	1,509 €
Total Current Resources		**- €**	**5,306 €**	**7,341 €**	**11,522 €**	**17,133 €**	**27,100 €**

Working Capital Requirements	**359 €**	**3,007 €**	**16,991 €**	**41,073 €**	**78,565 €**	**125,646 €**
Working Capital Investment	- €	2,648 €	13,984 €	24,082 €	37,491 €	47,081 €
Working Capital Desinvestment	- €	- €	- €	- €	- €	- €

Source: *Author.*

Appendix 15: *Balance Sheet.*

Year		2024	2025	2026	2027	2028	2029
Assets							
Non-current Assets							
Fixed Tangible Assets		4,781 €	7,477 €	6,922 €	9,528 €	10,783 €	15,668 €
Intagible Assets		16,737 €	27,452 €	37,742 €	62,750 €	97,368 €	144,169 €
Total Non-current Assets		**21,518 €**	**34,928 €**	**44,664 €**	**72,278 €**	**108,151 €**	**159,837 €**
Current Assets							
Inventories		- €	- €	- €	- €	- €	- €
Clients		- €	8,018 €	24,130 €	52,322 €	95,506 €	152,467 €
State and other public entities		- €	- €	- €	- €	- €	- €
Cash and Cash Equivalents		8,482 €	4,554 €	3,671 €	13,469 €	126,227 €	359,652 €
Cash Surplus		- €	1,936 €	6,041 €	23,763 €	19,551 €	35,300 €
Financial Investments		- €	- €	- €	7,402 €	31,746 €	48,503 €
Total Current Assets		**8,482 €**	**14,508 €**	**33,841 €**	**96,956 €**	**273,030 €**	**595,921 €**
Total Assets		**30,000 €**	**49,437 €**	**78,505 €**	**169,234 €**	**381,181 €**	**755,758 €**
Equity							
Equity capital		30,000 €	30,000 €	30,000 €	30,000 €	30,000 €	30,000 €
Reserves and retained earnings		- €	- €	- 10,869 €	4,889 €	26,434 €	132,747 €
Legal reserves	5%	- €	- €	1,488 €	4,667 €	4,667 €	4,667 €
Net Income for the period		- €	- 10,869 €	29,760 €	93,343 €	239,328 €	443,383 €
Total Equity		**30,000 €**	**19,131 €**	**50,379 €**	**132,899 €**	**300,429 €**	**610,797 €**
Liabilities							
Non-current Liabilities							
Medium and long-term loans		- €	25,000 €	12,874 €	- €	- €	- €
Total Non-current Liabilities		**- €**	**25,000 €**	**12,874 €**	**- €**	**- €**	**- €**
Current Liabilities							
Suppliers		- €	2,831 €	2,124 €	2,411 €	2,587 €	5,775 €
State and other public entities		- €	2,475 €	5,218 €	9,110 €	14,546 €	21,325 €
Short term loans		- €	- €	- €	- €	- €	- €
Taxes to pay		- €	- €	7,911 €	24,813 €	63,619 €	117,861 €
Total Current Liabilities		**- €**	**5,306 €**	**15,252 €**	**36,334 €**	**80,752 €**	**144,962 €**
Total Liabilities		**- €**	**30,306 €**	**28,126 €**	**36,334 €**	**80,752 €**	**144,962 €**
Total Equity + Liabilities		**30,000 €**	**49,437 €**	**78,505 €**	**169,234 €**	**381,181 €**	**755,759 €**
Error Checking		**- €**	**0 €**	**0 €**	**0 €**	**0 €**	**0 €**

Source: *Author.*

Appendix 16: *Financial Plan.*

Year	2024	2025	2026	2027	2028	2029
Financial Needs						
Investment in CAPEX	21,518 €	17,498 €	15,410 €	37,086 €	50,434 €	73,806 €
Investment in Working Capital	- €	2,648 €	13,984 €	24,082 €	37,491 €	47,081 €
Payment of medium-term loans	- €	- €	12,126 €	12,874 €	- €	- €
Payment of short-term loans	- €	- €	- €	- €	- €	- €
Medium-term financial costs	- €	- €	1,682.23 €	749 €	- €	- €
Short-term financial costs	- €	- €	- €	- €	- €	- €
Dividends	- €	- €	- €	- €	14,001 €	71,799 €
Taxes on profits	- €	- €	- €	7,911 €	24,813 €	63,619 €
Total Financial Needs	**21,518 €**	**20,147 €**	**43,203 €**	**82,703 €**	**126,740 €**	**256,305 €**
Financial Resources						
EBITDA = Gross Free Cash Flow	- €	- 6,781 €	45,027 €	128,377 €	317,360 €	582,729 €
Capital Increases	30,000 €	- €	- €	- €	- €	- €
Medium Term Loans	- €	25,000 €	- €	- €	- €	- €
Divestments in Working Capital	- €	- €	- €	- €	- €	- €
Recovery of Financial Investments	- €	- €	- €	- €	7,402 €	31,746 €
Financial Income from Investments	- €	- €	- €	- €	148 €	635 €
Total Financial Resources	**30,000 €**	**18,219 €**	**45,027 €**	**128,377 €**	**324,910 €**	**615,110 €**
Annual Balance	**8,482 €**	**- 1,927 €**	**1,825 €**	**45,674 €**	**198,170 €**	**358,805 €**
Initial Availability	- €	8,482 €	4,554 €	3,671 €	13,469 €	126,227 €
Forecast Final Availability	8,482 €	6,554 €	6,379 €	49,345 €	211,640 €	485,032 €
Desired Availability	8,482 €	4,554 €	3,671 €	13,469 €	126,227 €	359,652 €
Financing needs	- €	- €	- €	- €	- €	- €
Short-term loans	- €	- €	- €	- €	- €	- €
Interest on Short-Term Loans with Stamp Du	- €	- €	- €	- €	- €	- €
Resources to be Applied	8,482 €	6,554 €	6,379 €	49,345 €	211,640 €	485,032 €
Employee rewards	- €	2,000 €	- €	7,766 €	15,333 €	19,768 €
R&D	- €	- €	2,708 €	20,709 €	38,333 €	57,109 €
Financial Investments	- €	- €	- €	7,402 €	31,746 €	48,503 €
Final Availability	**8,482 €**	**4,554 €**	**3,671 €**	**13,469 €**	**126,227 €**	**359,652 €**

Source: *Author.*

Appendix 17: *Project Evaluation.*

Discount Rate	9.94%
NPV	321,749 €
IRR	90.49%
PP	3.010
Profitability Index	15.952

Source: *Author.*

Appendix 18: *Profitability Ratios.*

Year	2025	2026	2027	2028	2029
Performance Indicators					
Inputs					
Revenues	43,458 €	130,784 €	283,587 €	517,650 €	826,378 €
ESS variables	15,412 €	11,172 €	13,044 €	14,184 €	20,078 €
EBITDA	- 6,781 €	45,027 €	128,377 €	317,360 €	582,729 €
EBIT	- 10,869 €	39,353 €	118,905 €	302,799 €	560,609 €
NOPLAT	- 8,587 €	31,089 €	93,935 €	239,212 €	442,881 €
EBT	- 10,869 €	37,671 €	118,155 €	302,947 €	561,244 €
Net Income	- 10,869 €	29,760 €	93,343 €	239,328 €	443,383 €
Invested Capital	37,935 €	61,655 €	113,351 €	186,716 €	285,483 €
Outputs					
Return on Equity (ROE)	-57%	59%	70%	80%	73%
Return on Sales (ROS)	-25%	30%	42%	58%	68%
Return on Assets (ROA)	-22%	50%	70%	79%	74%
Return on Invested Capital (ROIC)	-23%	50%	83%	128%	155%
Degree of Operating Leverage	-2.580	3.039	2.275	1.663	1.438
Degree of Financial Leverage	1.000	1.045	1.006	1.000	1.000

Source: *Author.*

Appendix 19: *Sensitivity of NPV and IRR to Selling Price Variation.*

Sensitivity of NPV and IRR to Selling Price Variation		
Selling Price	**NPV**	**IRR**
	321,749 €	90.5%
4.93 €	301,541 €	88.5%
5.43 €	311,670 €	89.5%
5.93 €	321,749 €	90.5%
6.43 €	331,929 €	91.4%
6.93 €	342,058 €	92.4%
7.43 €	352,188 €	93.3%
7.93 €	362,317 €	94.2%

Source: *Author.*

Appendix 20: *Sensitivity of NPV and IRR to New Buildings Variation.*

Sensitivity of NPV and IRR to New Buildings Variation		
New buildings	NPV	IRR
	321,749 €	90.5%
160	285,400 €	86.9%
183	297,501 €	88.1%
206	309,625 €	89.3%
229	321,749 €	90.5%
252	333,873 €	91.6%
275	345,997 €	92.7%
298	358,098 €	93.8%

Source: *Author.*

Appendix 21: *Sensitivity of NPV and IRR to Labor costs Variation.*

Sensitivity of NPV and IRR to Labor costs Variation		
Labor costs	NPV	IRR
	321,749 €	90.49%
126,319 €	351,263 €	93.21%
146,319 €	341,425 €	92.32%
166,319 €	331,587 €	91.42%
186,319 €	321,749 €	90.49%
206,319 €	311,911 €	89.55%
226,319 €	302,073 €	88.58%
246,319 €	292,235 €	87.59%

Source: *Author.*

Appendix 22: *Sensitivity of NPV to Discount Rate Variation.*

Sensitivity of NPV to Discount Rate Variation	
Discount Rate	NPV
	321,749 €
6.94%	369,293 €
7.94%	352,613 €
8.94%	336,782 €
9.94%	321,749 €
10.94%	307,467 €
11.94%	293,891 €
12.94%	280,982 €

Source: *Author.*

Appendix 23: *Sensitivity of NPV to Selling Price and New Buildings Variation.*

	Sensitivity of NPV to Selling price and New buldings Variation							
	New buildings							
Selling Price	321,749 €	160	183	206	229	252	275	298
	4.93 €	271,309 €	281,374 €	291,457 €	301,541 €	311,625 €	321,708 €	331,773 €
	5.43 €	278,372 €	289,458 €	300,564 €	311,670 €	322,777 €	333,883 €	344,969 €
	5.93 €	285,400 €	297,501 €	309,625 €	321,749 €	333,873 €	345,997 €	358,098 €
	6.43 €	292,498 €	305,626 €	318,777 €	331,929 €	345,081 €	358,232 €	371,360 €
	6.93 €	299,562 €	313,710 €	327,884 €	342,058 €	356,233 €	370,407 €	384,555 €
	7.43 €	306,625 €	321,794 €	336,991 €	352,188 €	367,385 €	382,582 €	397,751 €
	7.93 €	313,688 €	329,878 €	346,097 €	362,317 €	378,537 €	394,757 €	410,946 €

Source: *Author.*