

**FORÇAS ARMADAS RESIDENCE: ECONOMIC AND
FINANCIAL VIABILITY ANALYSIS**

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Master Project in Management

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Abstract

One-third of Portuguese university students choose Lisbon to engage their academic experience. According to *Direcção-Geral do Ensino Superior*, more than 30% of these students are obligated to find accommodations to follow their studies.

The present work consists on a business plan for the construction of a public university residence for students, in *Cidade Universitária*, with the denomination “*Forças Armadas Residence*”. The main objective is to present new accommodations solutions for students in the city, focusing in the location has the main differentiation factor.

“*Forças Armadas Residence*” assumes a distinctive strategy, due to the inexistency of public residences in *Cidade Universitária*. With a good quality price relation, privileged location and a service turned to client satisfaction.

By developing a business plan, with a deep study of the sector, through a micro and macro environmental analysis and the study of the determinants variables to guaranty the success of the chosen strategic, it is possible to conclude for the economic and financial viability of the investment project.

Key words: University residence; Student accommodation; Viability; Business Plan

JEL Classification System: M13 – New Firms • Startups; M21 – Business Economics

Resumo

Um terço dos estudantes universitários portugueses escolhem Lisboa para a sua experiência universitária. Segundo a *Direcção-Geral do Ensino Superior*, mais de 30% destes estudantes terão de encontrar alojamento para seguir os estudos.

O presente trabalho consiste num plano de negócios para a construção de uma residência universitária pública, na Cidade Universitária, com demonização “*Residência Forças Armadas*”, que pretende apresentar novas soluções de alojamento para os estudantes na cidade, focando-se também na localização como principal fator diferenciador.

“*Residência Forças Armadas*” assume uma estratégia distintiva, dada a inexistência de residências públicas na Cidade Universitária. Com uma boa relação qualidade preço, uma localização privilegiada e um serviço virado para a satisfação do cliente.

Ao desenvolver o plano de negócios, com um estudo profundo do sector, através da análise da sua envolvente imediata e mediata e do estudo das variáveis determinantes para garantir o sucesso da estratégia a seguir, foi possível concluir sobre a viabilidade económica e financeira do mesmo.

Palavras chave: Residência universitária; Alojamento de estudantes; Viabilidade; Plano de negócio

JEL Classification System: M13 – New Firms • Startups; M21 – Business Economics

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1. Executive Summary

The present project consists in the construction and implementation of a student residence in Lisbon, under the denomination “*Forças Armadas Residence*”. It is a project of educational and social interest, that aims to help solving the lack of accommodations for students in the city.

The main objective of this project is to the study of economic and financial viability of the investment project, appealing to interested partners, ISCTE and University of Lisbon, and investors, Lisbon City Hall, that will indubitably contribute to the project’s success. As a project of public interest, with public agents involved, it needs to take in attention the social and economic interests of students.

The business core, is the monthly renting of single rooms to students, in 208 apartments, with three different room types, with prices ranging between 280€ and 450€. The residence building has nine commerce stores, facing the street, which will be rented to partner Universities of the residence and to other economic agents. These commerce stores will provide complementing services for residence attendees. The residence intended to accommodate both, Portuguese and foreign students.

The critical success factor for this project, the offer of quality accommodations at a reasonable price, in the *Cidade Universitária* area.

The initial investment value is 12.402.208€, where 3.100.552€ are financed by equity and the remaining, 9.301.656€, financed using external funds. As part of the external funds, the project can also apply to the Lisboa2020 program in priority axle 7 – Invest in education, in formation and in professional formation for the acquisition of competences and throughout life learning. The project has a 21-year duration, with one year and eight months of planning and implementation and an inauguration at the 1st of September of 2019.

The final conclusion of our study is that the project is globally viable when financed by both Lisboa2020 subsidy and a bank loan.

2. Introduction

According to *Direção-Geral de Estatísticas de Educação e Ciência* (DGEEC), there are over more than three hundred and thirty-three thousand students enrolled in Portuguese universities. Over a third of these students choose Lisbon's Metropolitan area to launch or deepen their higher education.

In Lisbon, the main landmark of education and knowledge is the Cidade Universitária, where the University of Lisbon and ISCTE are located. It is the biggest higher education campus in Portugal. The University of Lisbon alone possesses 4% of the city of Lisbon with dozens of buildings scattered throughout the city and fifty thousand enrolled students¹.

António Cruz Serra, Dean of the University of Lisbon words to *Expresso*, "if we have the best residences, we will have more people looking for our institutions". Are perfect to understand how can universities can attract more applicants, however with over twenty residences the University of Lisbon can only offer a bed for one in every forty students.

"How student accommodation impacts the international student experience", informs us that the rapid changes in higher education have fueled the demand for student accommodation and created many initiatives in students housing that can benefit investors. Onclin (2014)

Also, Larry D. Long (2014: 66-81), wrote in his article "Does it matter where college students live? Differences in satisfaction and outcome as a function of students' living arrangements and gender" it is proven that living on university campus is associated with such benefits as improved academic performance, higher rates of persistence and better social and academic adjustment.

So, since Cidade Universitária has two of Lisbon's biggest universities in area shouldn't there be a public residence nearby where students can live?

In an opportunity perspective, Lisbon's City Hall owns several plots of land located in Forças Armadas Avenue, giving a place in the area to construct the residence. When contacting City Hall, they informed that none of the plots had projects attached for the

¹ *Expresso*, 28th of January 2017. <http://expresso.sapo.pt/economia/2017-01-28-Universidade-de-Lisboa-tem-4-da-cidade>

future, however there was no interest of selling, giving notice that any projects developed in those lands would have to be approved and have the cooperation of City Hall.

In a social perspective, the accommodations market in Lisbon, lacking infrastructures to receive the annual quota of students enrolling in bachelor degrees, obligates students to search private accommodations, that are not reachable to everybody's budget.

The aim of this project is to analyze the viability of an investment project consisting in the construction and implementation of a residence for students in Lisbon, "*Forças Armadas Residence*".

Forças Armadas Residence, is a public university student residence that, besides the accommodation of students from ISCTE and the University of Lisbon, has seven rentable store spaces at street level and two underground parking floors.

It's pretended through this residence, the creation of an innovative concept that raises awareness for student living conditions in Lisbon, that must deal with sold out public residences, overpriced private residences and that directly compete with Lisbon's work force for the city's house renting market.

For the making of this project, a thorough environmental analysis is done to understand the market sector and the multiple variables that influence it. After understanding the market, the guidelines for the residence were developed, focusing on question "where do we want to go in this market?".

Finally, after shaping the residence's strategy, project implementation was developed and with it economic and financial viability were studied.

3. Market Environmental Analysis

The global environmental analysis of the business is a crucial step to formulate the strategy and critical guidelines to follow. This analysis lets us know opportunities, threats and the potential of the business. Consequently, in this section, we present the Macro and Micro environmental analysis.

3.1 Macro Environment analysis

In this analysis, we present the external conditions that influence the business indirectly, using political, economic, social contexts. Focusing on Portugal, but also with some reference to the European Union, due to our status as a member state.

3.1.1 Political Context

In recent years, as a partnership between the European Commission and the Portuguese government, the program Portugal2020, was created to promote and develop the country between 2014 and 2020, with a total of twenty-five billion euros to invest in development programs through the entire country.

Focusing on Lisbon, to develop the city a sub-program of Portugal2020 was created with the name Lisboa2020. This program will receive 833 million euros to invest in nine axes to develop the Lisbon region (NUTS II)², for the interest of the project we will focus “Priority axis 7 – Invest in education, in formation and in professional formation for the acquisition of competences and throughout life learning”³.

In this axis, the city will receive over 67 million euros to develop the education sector from kindergarten to college, with projects approved by the commission of Lisboa2020 for the development of that sector being financed 50% of their initial investment.

Despite the political crisis the country lived fifteen years ago, in the last years the political scene has been quiet stable. Portugal was one of the most affected countries in Europe’s Debt crisis so, to adapt, the government between 2011 and 2015 implemented hard austerity measures. However, the political scenario has changed and, in today’s government, growth is the new mission. To achieve it investing in education is critical,

² “Nomenclatura das Unidades Territoriais para Fins Estatísticos”, Category II

³ “Eixo prioritário 7 - Investir na educação, na formação e na formação profissional para a aquisição de competências e na aprendizagem ao longo da vida”. <http://lisboa.portugal2020.pt/np4/67.html>

has referenced by António Costa⁴. Also, the Dean of University of Lisbon, António de Cruz Serra “that there’s a market to have more student residences”⁵. Underlining the fact that the University of Lisbon has over fifty thousand students and twenty-five hundred Erasmus, with only one thousand beds at the disposal of the institution.

3.1.2 Economic Context

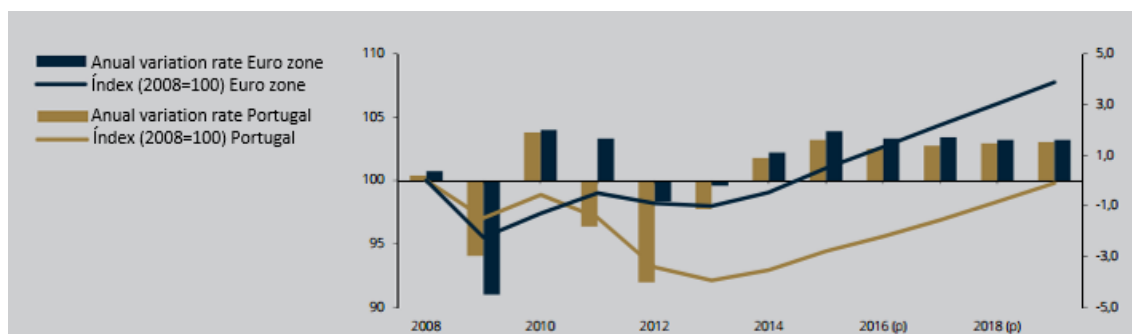
As mentioned previously, Portugal was one of the countries most affected in Europe’s Debt crisis, nowadays we are the third country with the largest public debt in the European Union, representing 130,5% of our GDP. We are only topped by Greece and Italy, with 177,2 and 133,3%⁶. However, not all are bad news, even due our public debt increased in 2016, it is forecasted that it will decrease in the years to come.

To better understand how the debt crisis affected the Portuguese economy, we are going to separately analyze some critical indicators.

3.1.2.1 Growth of GDP

As one of the main indicators of the health of an economy, growth of GDP gives us the information if an economy is expanding or contracting.

Figure 1- Growth of GDP 2008-2018



Source: Banco de Portugal - *Boletim Económico Dezembro 2016*

⁴ Jornal de Negócios, 10th of February, 2017.

<https://www.publico.pt/2016/10/03/local/noticia/universidade-de-lisboa-cria-residencias-de-estudantes-em-entrecampos-e-na-ajuda-1745773>

⁵ Público, 3rd of October, 2016. <http://www.jornaldenegocios.pt/economia/educacao/detalhe/antonio-costa-defende-que-educacao-e-investimento-mais-precioso>

⁶ Jornal de Negócios on the 13th of February. <http://www.jornaldenegocios.pt/economia/financas-publicas/detalhe/-bruxelas-preve-portugal-com-mais-divida-publica-em-2016-e-menos-nos-anos-seguintes>

Using 2008 as the reference year, in 2009 the Eurozone's GDP shrunk more than 4%, due to the Debt crisis that hit Europe in the end of that year. Due to the instability lived from 2009 to 2012, the Eurozone took action and in September of 2012, the European Central Bank calmed the financial markets by guaranteeing unlimited support to all Eurozone countries involved in sovereign state bailout. This measure brought back the confidence of investors to Eurozone and, after a year where the growth of Eurozone was stagnant, in 2014 GDP grew by 1% and, as growth increased in 2015, and by this year almost all Eurozone countries were passed the Debt crisis. However, for Portugal this wasn't as easy. After 2009, Portuguese GDP shrunk almost 3%.

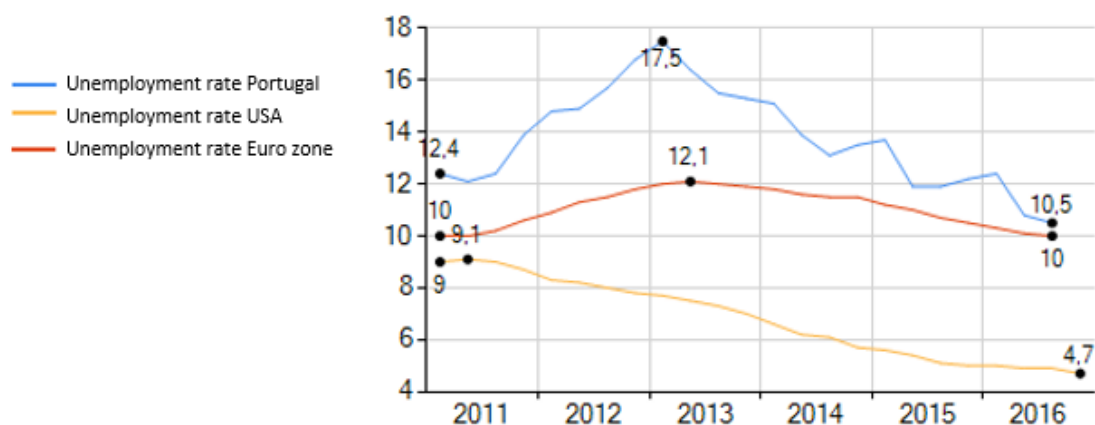
Although the situation seemed getting better in 2010, with GDP growing 1,9%. In 2011, Portugal entered in a three-year recession and by 2013, GDP reached its lowest value since 2008, shrinking almost 8% since that year.

Leaving the recession, Portuguese GDP grew a humble 0.9% in 2014. During 2015 Portuguese GDP grew 1,5%, this growth registered and the growth of 1,3% and 1,6%, forecasted by the European Commission for 2016 and 2017. Let's us conclude that eight years after the beginning of the Portuguese debt crisis, that maybe the worst part is over...

3.1.2.2 Unemployment rate

Being a lagging indicator the unemployment rate, rises and falls in the wake of changing economic conditions, instead of anticipating them, making it an excellent indicator of the strength of an economy.

Figure 2- Unemployment rate 2011-2016



Source: Banco de Portugal - *Boletim Económico Dezembro 2016*

After starting 2011 with an unemployment rate of 12,4%, the Portuguese scenario turned a leap to worst until February 2013, where it reached 17,5%, the third highest unemployment rate in the Eurozone. The Eurozone as a block reached its highest value of 12,1% in April 2013, meaning that 2013 was a crucial year for the Eurozone's economies, being the turn point for employment growth.

Since then the unemployment rate in the Eurozone dropped steadily until the third semester of 2016, hitting the 10% mark in the beginning of 2016. In Portugal unemployment dropped until the third semester of 2016, with a lot of ups and downs during those three years. However, in comparison with 2011, unemployment dropped 1,9 percentage points. In 2016, 82 thousand new jobs in Portugal. For 2017, the Minister of Finance forecasted an unemployment rate below 10% to the Organization for Economic Co-operation and Development⁷. This would allow the lowest value in at least six years.

3.1.3 Social Context

Lisbon, the capital of Portugal, is the largest city in country with over 540 thousand residents. The city's metropolitan area has over 2,7 million habitants. Lisbon is considered a global city do to its importance in finance, commerce, media, entertainment, arts, international trade, education and tourism. It is also considered a major economic center in Europe do to is growing financial sector and one of the largest container ports in the continent.

In the higher education sector, there are over 348 thousand students enrolled in universities throw-out Portugal. Almost a third of these, study in Lisbon, making it the major enrolling destination in public universities with over 103 thousand students. In 2016 alone, forty-five thousand and thirty-two bachelor students enrolled in Portuguese universities, according DGEEC⁸. In Lisbon during the months of September and October, due to the beginning of the college year, thousands of students rush the city and depending on the distance they can go every weekend or once a semester to their hometown. Almost 31 thousand students enrolled in faculties located in the Lisbon area, are from hometowns not located in the Setubal and Lisbon districts, meaning that these students are obligated to seek new accommodation in Lisbon.

⁷ Público in February 9th, 2017. <http://observador.pt/2017/02/08/ine-divulga-taxa-de-desemprego-de-2016/>

⁸ Students enrolled in school year 2016/2017. <http://www.dgeec.mec.pt/np4/EstatVagasInsc/>

3.2 Micro Environmental analysis

Relating to the factors that the business cannot influence directly, micro environmental analysis gives us a clear information about what to expect in the market, by analyzing demand, offer and competition we get a good look of the market situation

3.2.1 Demand Analysis – Students in the Cidade Universitária area

Having a total of over fifty thousand students, the University of Lisbon is the biggest university in Lisbon in terms of students. With their main campus and ISCTE campus located in the Cidade Universitária, this area is a landmark in terms of Portuguese higher education, with a total of thirteen faculties.

Table 1- Students enrolled in Cidade Universitária 2016

Faculty/University	Number of students enrolled	Number of new bachelor candidates in 2016
University of Lisbon	48066	7545
Faculdade de Medicina Veterinária	1025	115
Instituto Superior de Ciências Sociais e Políticas	2500	802
Faculdade de Motricidade Humana	1571	276
Instituto Superior de Agronomia	1700	245
Instituto Superior de Economia e Gestão	5400	450
Instituto Superior Técnico	11611	1489
Faculties of the University of Lisbon located in Cidade Universitária area	24259	4168
ISCTE	8655	1100
Number of students studying in the Cidade Universitária area	32914	5268

Source: DGES – Concurso nacional de acesso 2016 em números

Focusing on that area and removing the faculties not located in the Cidade Universitária belonging to the University of Lisbon, we can say that the University of Lisbon have

24.259 registered students there, and during 2016 they received 4.168 new candidates for bachelor degrees and more than 2200 foreign students, only in those twelve faculties.

ISCTE has a total of 8.655 registered students and during 2016 the faculty received 1.100 new bachelor candidates.

After analyzing the thirteen faculties, we can conclude that 32.914 students studied in the Cidade Universitária area in 2016, also 5.268 new students enrolled in bachelor degrees and 2.900 foreign students.

Table 2- District origin of bachelor candidates in faculties of Cidade Universitária in 2016

	Total bachelor candidates in 2016	Lisbon and Setubal districts	Students obligated to move to Lisbon	Ratio of outside students
University of Lisbon	7545	5070	2475	32,8%
ISCTE	1100	769	331	30,1%
Total	8645	5839	2806	32,5%

Source: DGES – Concurso nacional de acesso 2016 em números

However, not all students will move to Lisbon, some live close by, others will take public transportation and a few will that private transportation. But for students outside Lisbon’s and Setubal’s district, the options presented above are not reliable and finding accommodations in Lisbon is a must. In 2016 alone, 2475 new candidates in the University of Lisbon came from districts outside Lisbon and Setubal, making up for over 32% of the sample of new candidates.

Meanwhile, at ISCTE, 331 students in the same situation, over 30% of new candidates for bachelor.

The two universities combined, received over 2800 new candidates from districts outside Lisbon and Setubal. Not all students will study in the Cidade Universitária area, because the University of Lisbon has faculties outside that area, but all represent a wave of new customers in need of accommodations throw out Lisbon.

Table 3- Students of Cidade Universitária in need of accommodation 2016

	Total of new bachelor candidates in 2016	Ratio of outside students	Total of students in need of accommodation in 2016
Faculties of the University of Lisbon located in Cidade Universitária area	4168	(Assuming) 32,8%	1367
ISCTE	1100	30,1%	331
Total	5268		1698

Source: DGES – Concurso nacional de acesso 2016 em números

Due to lack of specific information, it was not possible to get the number and consequently the ratio of students coming from districts outside Lisbon and Setubal from the faculties of the University of Lisbon in the Cidade Universitária. So, if the ratio of students outside Lisbon's and Setúbal's districts, in the twelve faculties of the University of Lisbon in the Cidade Universitária area, is similar to the overall of the University presented previously, then we can conclude that more than 1300 new candidates for bachelor were obligated to find accommodation in Lisbon. This means that in 2016, the two universities combined in the Cidade Universitária had almost 1700 hundred new students in need of accommodation at the beginning of the school year.

According to the Dean of University of Lisbon, António Cruz Serra (cited in section 3.1.1), the Erasmus and other mobility programs community studying in Lisbon every year also need accommodations to stay during at least one semester.

The University of Lisbon received, in the academic year of 2014/2015 (in both semesters) 2.268 foreign students, however the distribution in each semester is unknown. ISCTE received 737 foreign students in the academic year 2015/2016, 297 in the first semester, 200 in the second semester and 240 during summer school programs⁹.

3.2.2 Offer Analysis – Accommodation in Lisbon

After knowing the results of their application, freshman students must make a critical decision either rent a room or rent a house. Renting a house is only an option by gathering

⁹ Information received from the International Relations Department at ISCTE

some friends and dividing the rent, however this is the easiest part, the most complicated part is to find a house that fulfils everybody's needs. Because of this, the large majority of students choose to rent rooms to fulfill their accommodation needs, after making that decision students have two alternatives either search for public accommodation in their faculty or for private accommodation.

3.2.2.1 Public accommodations

To study the offer of public accommodations for students, we must understand that students can only enroll in residences that belong to their university. The two universities in the Cidade Universitária area, have different accommodation systems, however they have in common the fact, none of the universities has a residence near it's campus in Cidade Universitária.

3.2.2.1.1 Residences of the University of Lisbon

The University of Lisbon has a total of twenty-one student residences, these residences are scattered throw the Lisbon city, meaning that some of these are far from the Cidade Universitária area. From these twenty-one residences, it was possible to get information on eighteen of them, with a total of one thousand one hundred and forty-one beds, divided in one, two and three-person bedrooms. Students may use common areas, bathrooms that are gender assign and the kitchen.

With a price of a hundred and forty euros for the University of Lisbon students and of a hundred and sixty euros for students from others universities, it is one of the most, if not the cheapest accommodation, in Lisbon for students. However, with information based on the University of Lisbon's website¹⁰, there is no mention of size of each room, but there is an average of 1 bathroom per 5 students (4,7 rounded up) and of 1 kitchen per 38 students (37,8 rounded up).

¹⁰ <https://www.ulisboa.pt/home-page/viver/alojamento/>

Table 4- University of Lisbon's residences

	One-person room	Two-person room	Three-person room	Capacity	Number of Bathrooms	Number of Kitchens	Students per Bathroom Ratio	Kitchen per Student Ratio
António Aleixo	2	15		32	4	1	8,0	32
Artilharia Um	5	23	1	54	14	2	3,9	27
Benfica	14	9	6	50	18	2	2,8	25
Campo Grande	2	18	12	74	13	2	5,7	37
D. Dinis	No information							
Egas Moniz	15	42	14	141	36	1	3,9	141
Monteiro Alves	4	21		46	14	1	3,3	46
Erasmus		5	1	13	2	2	6,5	7
Filipe Folque	5	29	5	78	23	2	3,4	39
Gago Coutinho	3	10		23	6	1	3,8	23
Leite Vasconcelos	1	8	1	20	6	2	3,3	10
Luís de Camões	7	42		91	28	2	3,3	45,5
Lumiar	13	23		59	23	2	2,6	29,5
Monte Olivete	8	20		48	14	2	3,4	24
Motricidade Humana 1		22	6	62	19	2	3,3	31
Motricidade Humana 2	No information							
Ribeiro Santos	6	18		42	14	2	3	21,0
Prof. Ramôa Ribeiro	66	8		82		3		27,3
Tomás Ribeiro	9	5	4	31	5	2	6,2	15,5
Instituto Superior de Agronomia	No information							
Engenheiro Duarte Pacheco	153	36		225	9			
Total	313	354	50	1171	248	31	4,7	37,8

Source: Accommodations section in the University of Lisbon's website

3.2.2.1.2 ISCTE

ISCTE has only one student residence located in Santa Apolónia. This residence has a total of seventy-nine beds. Divided mainly in two-person bedrooms, this residence has only one three-person bedroom with private bathroom and three four-person bedrooms also with private bathroom.

Students in the two-person bedrooms, are also divided into two different groups. Students with a scholarship, that in 2016/2017 were a total of twenty-six, pay a hundred and seventy-five euro's each month for a two-person bedroom. But they must share the bathroom with others rooms, while the others students pay two hundred and fifty each for a two-person bedroom with a private bathroom. The three-person bedroom and the four-person bedrooms with private bathroom are priced at two hundred and hundred and seventy-five euros per month.

This means, that directly compared with the University of Lisbon prices, ISCTE's residence is a bit more expensive.

3.2.2.2 Private accommodations

After deciding to rent a room in Lisbon, students have a lot of options to choose between, just by searching online for a room. With a large range of websites to use to rent a room, students can find two options, either rent a room from a landlord that owns the house or rent a room for a private company. And depending on the company students can pick either renting a room in a house or in a residence, depending on their needs and financial resources.

3.2.2.2.1 Private landlords renting rooms

Private landlords, normally advertise their rooms in real estate websites, because it is the easiest and fastest way to rent a room. Rooms rented by private landlords can have expenses included or not, depending on the deal made.

Since these rooms are advertised to everybody, students must compete with Lisbon's working force, and at the beginning of the academic year, landlords can inflate the price of the rooms, since they know demand for rooms rises with the results of college applications. However, by finding a room outside that period students can find a good deal that will fix their accommodation problem.

Due to the large number of different landlords, prices can range from little less than two hundred euros to over an astonishing four hundred euros just for one bedroom, just depending on location, condition of the house, number of people sharing the house and size of the room.

3.2.2.2.2 Private companies renting rooms

Private room real companies are companies that have a certain number of houses scattered throughout Lisbon. Normally they use their company website to advertise their rooms to the public.

By visiting their website, the possible future room renter, has the possibility to choose the house that best suits their needs. Normally each room has a different price and different characteristics, and the home expenses are included in the room's rent.

With the research done in city of Lisbon we could identify four companies renting rooms in these terms to students and were willing to give information, with a total of three hundred and fifty-six beds to offer. In table 5 below, we can observe the lowest and highest price practiced by each company in each room type:

Table 5- Prices of private companies renting rooms

Private companies renting rooms	Prices of the rooms												
	One person room no wc		One person room with wc		Two- person room with wc		Studio		Apartment		Expenses		
	-	+	-	+	-	+	-	+	-	+	-	+	
The Housing Concept ¹¹	200	350	350	475			400	550	515			60	95
Liv'in Lisbon ¹²	360	500	500		380		670				40		
Houzes ¹³	225	350	375	540									
Nine Student Living ¹⁴			500		300	350	470	650					

Source: Company's websites

However, to get real understanding of the price in each company we must see the price per square meter. After contacting the companies to know the size of each room type they offer, only three companies responded. Making it possible to know the price per square meter in the cheapest and most expensive room in each room type offered by the company.

¹¹ The Housing Concept. <https://www.thehousingconcept.com/>

¹² Liv'in Lisbon. <http://www.livinlisbon.com/>

¹³ Houzes. <http://www.houzesstudent.com/>

¹⁴ Nine Student Living. <http://www.ninestudentliving.com/>

Table 6- Price per square meter of private companies renting rooms

Private companies renting rooms	Price per Square meter with expenses included									
	One person room no wc		One person room with wc		Two-person room with wc		Studio		Apartment	
	-	+	-	+	-	+	-	+	-	+
The Housing Concept	No Information									
Liv'in Lisbon	33,3	36,0	33,8		42,0		35,5			
Houzes	18,8	21,9	41,7	30						
Nine Student Living			27,8		33,3	19,4	19,6	21,7		

Source: Company's websites

It is possible to conclude in the three companies that shared information about the room's size, the lowest price practiced in each room type in terms of room size, with an average of 18,8 euros per square meter Houzes has the lowest price practiced in one-person rooms with no bathroom, however if this included a bathroom the lowest price practiced would be from Nine Student Living with 27,8 euros. This same company, has the lowest price in terms of two-person rooms and studios, with 19,4 and 19,6 euros per square meter.

3.2.2.2.3 Private Residences

In the city of Lisbon there is an undefinable number of private residences. They work almost the same way as public ones, however normally in the private residences students can pay an extra fee monthly and have a half-pension or full-pension. This way they don't have to worry about making/buying the main meals in a day.

After researching for these residences, only three of the thirteen contacted shared information about the prices and size of the room offered. The remaining residences, some of them have catholic connections, and did not provide any information about their price range or room size. The only information that almost every residence gave was about their occupation rate, saying that they had almost all beds rented.

Following the information given by LisbonRooms, Uhub, SPRU and Staytoo, a project that will enter the market in 2019, it was possible to make a table with the highest and lowest price per room practiced by each company. Table 7 presents these numbers:

Table 7- Price of private residences

Private residences	Prices of rooms												
	One-person room no wc		One-person room with wc		Two-person room		Studio		Apartment		Expenses		
	-	+	-	+	-	+	-	+	-	+	-	+	
LisbonRooms ¹⁵	245	275			165	220						50	60
Uhub ¹⁶	385	410	425	535			510	650					
SPRU ¹⁷	405		495		288				634				
Staytoo ¹⁸									400	600			

Source: Company's website

And consequently, with the dimensions given by each company it is possible to calculate the price per square meter in each room type, presented in table 8:

Table 8- Price per square meter in private residences

Private residences	Price per Square meter with expenses included									
	One-person room no wc		One-person room with wc		Two person room		Studio		Apartment	
	-	+	-	+	-	+	-	+	-	+
LisbonRooms	29,5	22,3			28,7	22,4				
Uhub	35,0	31,5	25,0	24,3			31,9	29,5		
SPRU	33,8	16,9	41,3	20,6	48,0	24,0			22,6	
Staytoo									16	20

Source: Company's websites

After knowing the price per square meter in each room type, it is possible to conclude that SPRU has the lowest price in one-person rooms, with or without bathroom. However, since they practice the same prices for rooms with different sizes, renters can also get a very expensive room if they get one of the smaller rooms available. In the two-person rooms, LisbonRooms practices the lowest price with 22,4 euros per square meter.

¹⁵ LisbonRooms. <http://lisbonrooms.com/pt/>

¹⁶ Uhub. <http://www.uhub.eu/pt>

¹⁷ SPRU. <http://www.spru.pt/>

¹⁸ Staytoo project. <http://expresso.sapo.pt/dossies/diario/2017-05-19-Alemaes-vao-arrendar-apartamentos-de-30m2-ate-600-a-estudantes-em-Portugal>

In the apartment and studio category the lowest price will be practiced by the new competitor Staytoo with apartments with a price of 16 euros per square meter, even cheaper than rooms in the competition, but however not yet presented in the market.

The analysis presented in private companies renting rooms and in private residences, gives us a good idea of the price practiced in terms of size of the room, but leaves important factors like location, number of people sharing the house and condition of the house.

3.2.3 Competition Analysis

To develop a project in this industry, it is crucial to know our competition, so that we can put in practice a strategy that positively differentiates us from them, meanwhile adding value to our client.

It is with this objective, that understanding our direct competition - the ones with the same target has us, for accommodations in Lisbon - becomes important. Being projects of similar offers and business concepts, we will focus on residences for students in the city of Lisbon.

Table 9- Market position of the competition

	Strengths	Weaknesses	Market Position (Student Accommodation Market in Lisbon)
Public Residences	Low price	Location - scattered in the city; Access to common areas; Difficult to get a vacancy.	Medium position, due to the lack of available offer
Private Residences	Pension services; Location – Some located near Cidade Universitária	High price; Information about the rooms.	Strong Position

Source: Author's research

In table 9, we find characteristics of the market of residences in the city of Lisbon, although some of them are not directed to students in Cidade Universitária, we will consider these characteristics because of their availability to students of ISCTE and the University of Lisbon.

This has the purpose of showing the lack of averaged priced options, with location in the Cidade Universitária area and with a reasonable access to common areas (kitchen and bathroom).

Through the analysis of the existing offer, we can conclude that there is an offer for a client of medium/high and high class. Private residences with a customer focus service, that can respond to a bigger range of customer needs, including normally regular room and sheets cleaning and with the possibility of providing lunch or/and dinner.

Private companies renting rooms, being companies with a small offer of options and capacity in the market, will not be considered direct competition because of their small weight in the market.

With an offer that is accessible to all, in terms of income, public residences normally are buildings belonging to the University or a private landlord that has a partnership with a University. These residences receive a certain number of students from the University (normally the full capacity of the residence) but, in exchange, must follow the prices agreed. With only access to the room and common areas, without any possibility of complementary services, they normally satisfy the needs of clients looking for low price accommodations.

After this analysis, it is possible to define the strengths and weaknesses of each competition type, to understand where our project should improve and distinguish itself. Since almost all public residences analyzed are from the University of Lisbon, the price mentioned previously is regarding the price practiced by that University, since we know ISCTE's price is a lightly higher. In the private residences, the lack of information about the rooms is referring the lack of images and information about room dimensions available to the customer before renting, even after contacting the company.

3.3 Critical Success Factors

It's crucial to identify and analyze the critical success factors presented in the business since these will be the reasons why our clients will prefer our services instead of the competition.

Thus, has referred previously, the characteristics that must be considered critical success factors and of which we should never lose track in this business are: Location, Price and Access to common areas.

Location: Is the pillar of our business, since it will allow our clients being close to a great number of public faculties. Being the only public residence in the Cidade Universitária area.

Price: The clients of public residences are sensible to the price practiced, so it's crucial to take that in attention. Having a competitive price, superior to the University of Lisbon residence's, in the range of the of ISCTE's prices, but also taking in account the value students will save in public transportation.

Access to common areas (Kitchen and bathroom): This is a relative factor, since it is impossible to know how much each individual value's each division in their house. However, the more comfortable and satisfying the stay in comparison with the competition the higher the probably of the student to stay the remaining of the year and to return the next year. Due to gap presented in the competition in this sector, it is safe to say that this is a crucial differentiation factor.

The following points, are not considered critical success factors, however are competitive advantages or core business competences that should be present in the residence:

Study rooms, Auditoriums, Multipurpose rooms and Meeting rooms: Rooms that students have access for education and recreation purposes.

Commerce nearby: Complementing the services available in the residence and giving students a more complete experience, without having to walk long distances or use transportation.

Parking: Some students have their own private transportation, to them close access to parking is critical.

Security: It's crucial for our client to feel safe, since they are trusting us with their home for the moment. A secure feeling should be a constant presence.

Cleaning: Indispensable to maintain a clean and comfortable environment in the accommodation sector.

3.4 Marketing Strategy

Has a warrantee that we are not wasting resources, we should ensure a simple but fulfilling service to our customers, this way avoiding inefficient or unprofitable market segments.

This way, we should segment the product and consumer of our core business, and used complementary businesses if needed to raise the efficiency of the service provided.

3.4.1 Segmentation

Foreign Students: Clearly an important segment for the residence project, the increase of foreign students that are coming to Lisbon every year, for a semester, a year or even for a full graduation. These students normally with the capability of paying extra for the privacy of living alone, look for a more spacious and well-located accommodations.

Work force: As the biggest city in Portugal, many come to Lisbon to find and get job opportunities. For most, buying isn't an option, so rental become the solution. And although, this segment could be interesting, it doesn't fulfill the profile of the client, since they aren't students. And normally look for accommodation with more privacy and a calmer environment.

Portuguese Students: The main segment of the residence project, students that come to Lisbon to study and need to change residency, normally come to Lisbon in September and leave before the Summer vacations, these students look for a quiet and practical accommodation, where they can have all the comforts they have at their parents' home.

So, after these statements, the two segments that the project will target are **Portuguese and Foreign students**, with a more focus approach to the Portuguese segment since it represents a biggest slice of the market.

3.4.2 Target

Reviewing the profile of DGES college applicants in 2016¹⁹, and following the data presented previously, the “*Forças Armadas Residence*” is suitable to the following target client:

- Client's motive: Accommodations to pursue studies in Lisbon
- For individuals, with ages between 18 and 30 years old.
- Clients that live outside of Lisbon and come alone to the city, looking for a sociable environment with young people

¹⁹ http://www.dges.mctes.pt/estatisticasacesso/2016/cand_01.php

- Middle class, with some possibility to pay extra to get more comfortable and closer to the faculty accommodation service

3.4.3 Positioning

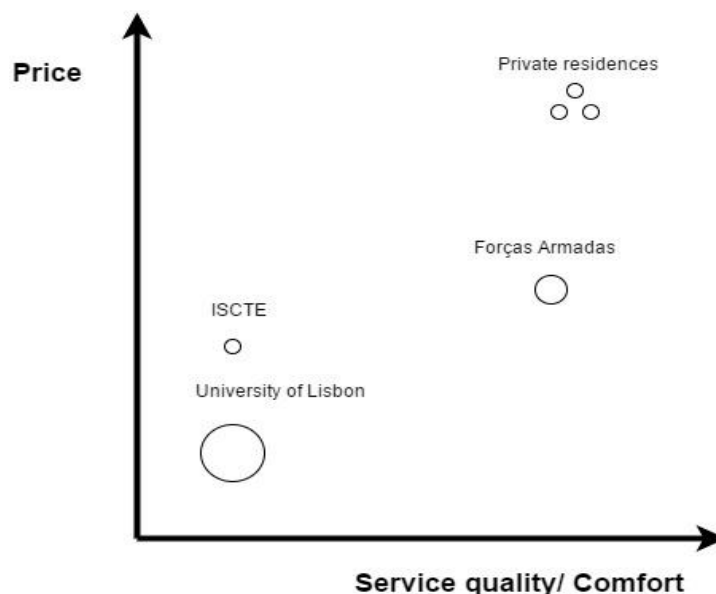
The positioning adopted for the “*Forças Armadas Residence*” is settled on the characteristics of this project and the target presented. Following the previous analyzes, we could identify a lack of offer in Cidade Universitária of student accommodations that with a reasonable price has the service quality and comfort wanted.

Therefore, “*Forças Armadas Residence*” is a public student residence oriented for the target presented previously, looking for comfortable accommodations near their faculties with a good price-quality relation. Being the only public student residence in the Cidade Universitária area, it can easily mark it’s positioning in the area. The objective is to differentiate itself from competition, with constant quality service that builds loyalty with the clients.

With the need to house students over Summer, the residence can offer accommodations to students that visit the two universities during the program “*Summer School*”, this way maintaining business during almost an entire year.

The chart presented in figure 3 shows the Forças Armadas residence positioning, has described previously, in comparison to the competition in the student residence market.

Figure 3- Positioning of *Forças Armadas Residence*



4. SWOT analysis

Has tool for strategic planning and management of a company, SWOT analysis gives the us the strengths and weakness of a company, but also opportunities and threats to consider in the future.

Strengths

- No public residence in the area
- Good price-quality ratio
- Great number of faculties in the area
- Common areas directed to study
- Outside gardens
- Security in the building
- Regular cleaning service
- Private kitchen and bathroom for each apartment

Weaknesses

- Initial Cost
- Valuable piece of land belonging to Lisbon's City Hall
- Profitability – Long term investment

Opportunities

- Investment growth in Lisbon
- Showed support of the Lisbon's University's Dean for residences
- Growth of portuguese economy
- Notoriety of portuguese faculties outside of Portugal
- Lisbon2020 – priority axle 7²⁰

Threats

- Rise of competition
- Lack of interest of City Hall in the project
- Volatile rental housing market

²⁰ Presented in section 3.1.1 – Social Context

5. Strategy

To formulate the company's strategy, we first must identify and define the most important objectives to reach.

5.1 Vision

The “*Forças Armadas Residence*”, has the vision of developing a concept of quality accommodations for students in the city of Lisbon, by providing a good and fulfill experience to their clients.

5.2 Mission

The mission of Forças Armadas residence, is to offer students a good service and a comfortable stay, that will be perceive has a good experience with one of the best price-quality ratios in the sector.

The success of this mission will be marked by the quality of the service presented, that should be client oriented. Also, the human resources on the field (Security, cleaning staff) should be fully train to help any client (Students).

5.3 Objectives and Values

For the making of this section, it is considered objectives has the tangible goals of the company, while values the characteristics and behaviors defended by the company.

For the project Forças Armadas residence the objectives are the following:

- To be an accommodation reference to students in Lisbon, this way away raising standards in the market.
- To achieve 95% occupancy rate in the first four years in business.

Values

- Client orientation and fulfilment
- Quality focus
- Socially responsible

5.4 Business Strategy

For a strong company performance, it is crucial to have a good business strategy that, aligned with the company's values, can guide the company achieve its objectives through a long-term plan.

5.4.1 Corporate Strategy

The core of the business will be providing accommodations to students, with a single room per student and private kitchen and bathroom access. Complementarily, students will have a commerce area in floor 0 and underground carparking.

5.4.2 Business Strategy

This strategy has some differentiation factors inexistent in the competition, but for the client to perceive and value such a strategy, it is our job to enhance and emphasize our differentiation factors so that we can distance ourselves from our competitors.

“Forças Armadas Residence” pursues a differentiation strategy, due to the lack of public residences and the inexistence of private residences with a good price/quality ratio in the Cidade Universitária area. Also, with comfort being key in the sector, each student will have a private room, with access to a kitchen and a bathroom, sharing it only with one other person. Being this the main differentiation factor in comparison with both private and public residences. Additionally, the residence will also provide a good and clean environment in common areas, for clients that value and look for a comfortable, relaxed and quality service at a reasonable price.

5.4.3 Functional Strategy

Pursuing the objectives underlined previously is crucial to prepare and form our human capital, since we are delivering a continuous service to a client, we need to ensure that our human resources are aligned with the overall company objectives.

For this purpose, it is important to underline to our human capital that will be always present and that will have more contact with the client (Security), that they must be ready to answer possible questions by the client and must make them feel welcomed and secure, so that they can enjoy a pleasant and comfortable experience. The manager, besides what was mentioned previously, must also manage the different resources within the residence

and deal with the different problems presented by it daily, to ensure a correct and efficient running of the operation.

6. Project Implementation

In this section, we will present the different steps in the implementation of the project, like the marketing mix policies to follow, human resources, the different characteristics related with the construction of the residence and others.

6.1 Marketing Mix

Directed by the positioning of the company, marketing mix policies must be the image of the company's strategy, so this section will focus product, price, and the distribution and communication, since these are the areas that the client has direct contact with.

6.1.1 Product

The product policy of a company consists in creating a product, that the company can offer to satisfy their client's needs. Essential to the marketing mix, because that we know that this product is inexistent in the Cidade Universitária area, the product developed consists of an accommodation service in a public student residence with a good price/quality ratio. We can explain the product created has the following:

Base Service: Lease of a single room for a month, that will have available to the clients the following group of services, equipment and infrastructures:

- 208 rooms
 - 22 designed for students with reduced mobility with private kitchen and bathroom;
 - 42 single rooms with private kitchen and bathroom;
 - 144 two-person rooms, where each student has its private room, but share kitchen and bathroom;
- 2 multipurpose rooms, that can be used as an auditorium;
- 2 meeting rooms;
- 1 computer room, with 6 computers;
- 1 common room, with televisions, ping pong, football and snooker tables;
- 2 study rooms;

- Outside gardens near the residence;
- Internet access inside the building;
- 5 entries for clients to access the building;
- Commerce in floor 0 of the building;
- Underground car parking

This project will increase the accommodation capacity for students near Cidade Universitária, allowing more students to live near the faculty they study, promoting these faculties and all the surrounding commerce that will be affected directly by the in-flow of residents.

Furthermore, it's crucial to not lose track of the product guidelines presented in the previous sections, since they are important and should be used to achieve a competitive advantage.

6.1.2 Price

These prices to be practiced in “*Forças Armadas Residence*” will be similar to ISCTE’s residence price, but taking in attention that they must be cheaper than the competition in the private sector. Being a residence service students must enroll and consequently stay at least for a full month.

To make our service cheaper than the private competition, we will focus on table 10, to compare in terms of price per square meter.

Table 10- Prices of Forças Armadas residence (Prices include VAT)

	Minimum Square meters	Price	Price per square meter	Price per person
One-Person Apartments	24	350	14,6	350
Reduced Mobility Apartments	40	250	6,3	250
Reduced Mobility Apartments, rented to a normal student	40	450	11,25	450
Two-Person Apartments	48	560	11,7	280

Source: Based on the competition’s prices

In ISCTE the price for a two-person room is two hundred and fifty euros with a private bathroom, however students living in the residence must take transportation to go to their faculty. This means that they will have also to pay for public transportation.

Therefore, we believe that we will be able to attract price-sensible clients that look for comfort and the commodity of living close to their faculty. It is in this sense that the residence can add value. Also, with the one-person apartments we can attract clients that are not so price-sensitive and can afford to pay extra money for the comfort of living alone and having extra space for themselves, mainly focusing on foreign students.

The prices practiced will consider the room typology (one-person, two-person or mobility reduced apartments) and minimum stay period is of one month, meaning that students must pay a deposit equaling one month's rent.

With these prices, we can beat the competition's price in all services since our highest price per square meter is 14,6 euros, and the competition is 16 euros. While maintaining a similar price policy has ISCTE, however with a better service, since the rooms are separated and students have their own two-person shared kitchen.

6.1.3 Distribution

To make students aware of the existence of the residence, the two universities partnered with the project will have a key role to play, since we need them to communicate our presence and they need us to host their students.

Also, since the students that look for accommodation, do not live in Lisbon, almost all of them will go online to try to fulfill that need. A direct channel to client must be the residence's website, with the information about the residence, the conditions of the rooms, and allowing students applications for the apartments.

6.1.4 Communication

As mentioned above, since students will go online to at least see the options they have in terms of accommodations, it's crucial to have a good communications is crucial in order to reach our targets

Also, since we know every student physically enrolls in their faculties in September, we should focus our effort in the faculties in that month.

Publicity

Internet – Being the main communication channel nowadays, it is easy for clients to reach us (easy to access and the proximity) and cheaper than traditional channels. It's accessible to large group of potential clients, making it a good approach in terms of communication.

The website itself will be linked in the two universities websites in their accommodations section. So, when students visit their university's website looking for accommodation they will know we exist and which of type of services we provide.

Publicity in the Universities – As said previously, we must focus our publicity in the universities in September, this way reaching more students. Leaving flyers in the enrolling section of all the faculties in Cidade Universitária to reach all their new students. But using also, posters in ISCTE and at University of Lisbon's Law, Medicine and Science faculties, being these the faculties with the higher number of students.

6.2 Location, dimension and construction

The location of the residence considers the following factors:

- Location and public transportation – The residence will be at five minutes walking distance to the center of Cidade Universitária, and at even less distance to the nearest subway station (Entre Campos). In Lisbon's City Hall records, the plot of land is numbered has allotment four of the Forças Armadas Avenue concession, and it belongs to Lisbon's City Hall.
- Property owner and terrain's conditions – Being a public residence, the objective was to find a piece of land that would belong to either one of the faculties or in this case, to Lisbon's City Hall. From the two allotments found in the Forças Armada Avenue concession, the plot of land with better characteristics and accesses was allotment number four.

In Appendix III – Location and Implementation it is possible to visualize the location of the allotment and its surroundings.

6.2.1 Dimension

The interior area of the residence will have 23448 m² divided in three buildings, spread per nine floors each, the remaining terrain (5601 m²) will be outside the construction zone

and will be left for gardens, parking spaces and sidewalks. The two underground floors will be reserved for underground parking spaces with an area of 5334 m².

The ground floor with an area of 2516 m², will have five entrances to the residence, nine areas to rent to commerce (areas between 37 and 395 m²), and one auditorium (75 m²) only accessible from the inside the residence.

The first floor of building B, will have the common areas of the residence, with one common room (166 m²), two study rooms (42 and 79 m²), one bathroom for each gender, one room with computers (30 m²), two small meeting rooms (9 and 10 m²) and finally an auditorium (75 m²). While in buildings A, has seven one-person apartments (one with 24 and six with 28 m²) and one reduced mobility apartment (43 m²). Building C has fourteen two-person apartments (48 m²) and one reduced mobility apartment (40 m²).

The second to the sixth floor, is fully reserved to student apartments so the architecture in building A and C are the same has the first floor. However, building B is composed of twelve two-person apartments (48 m²) and two reduced mobility apartments (40 m²).

It is our intent, to give the minimum size for comfort in the apartments, since we know that students living in the residence will pass more time in their apartment than in the common areas of the residence.

6.2.2 Construction

The architecture of Forças Armadas residence, had the objective to project a sense of modernism and simplicity. In charge of this process, was architecture student Diogo Jurze, that developed the architecture project present in Appendix III.

In the making of the architecture project, one of the guidelines was to frame the residence in the surrounding in area, respecting surrounding architecture and colors. While the other guideline was to use as inspiration previous residences built worldwide²¹, using some characteristics in our own project.

The construction of the residence, will be developed by local companies following the legislation and legal channels in use at the time. Construction estimate can be consulted in Appendix IV – table 14.

²¹ <http://www.archdaily.com/category/dorms>

The decoration of the rooms, will include the furniture and household appliances that are part of the service. However, clients can decorate their rooms as they will, if they do no damage to the residence property.

6.3 Equipment and goods

The project assumes that it is considered all the basic equipment to accommodate students in a room (bed, study desk, wardrobe, etc.), to have an operational private kitchen and bathroom (fridge, stove, etc.), to have practical common areas (snooker, televisions, study desks, etc.) and to maintain the operation running as normal.

In terms of goods, it was considered the goods that will be consumed by our clients in common areas of the building (toilet paper, bathroom soap, etc.), since the residence will not sell complementary services, there are not many goods related with the core business consumed.

6.4 Supplies and services

With the pursue of an efficient operation for the residence, some external services will be hired with operational and management objectives.

Management objectives, for fulfillment of this objective we have services of accounting and auditing, publicity, *webdesign* (elaborating and maintaining the website) and insurance.

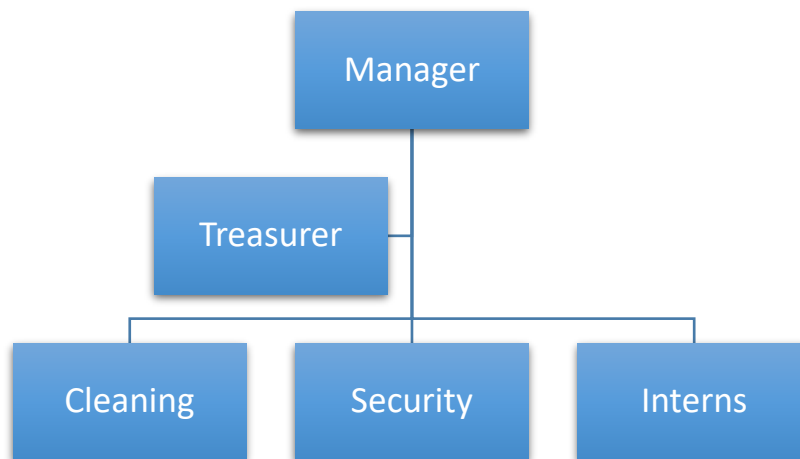
To maintain the residence running, operational services has security and cleaning are mandatory, for the oversight of these services company's Safira and security group 2045 were contacted and presented the budgets present in Appendix IV- table 11 and 12.

Additional expenses including electricity, gas, water and communications were also considered

6.5 Human resources

For the residence's staff the following organogram has developed, to show the work force structure.

Figure 4- Organization of residence staff



Since the residence doesn't have complementary services available, to the accommodation service. The structure of the work force was thought out to be simple and only with essential two employees, one for the operational oversee and other for the financial services. However, some outsourced services will also need to be hired.

Manager – will be directly responsible for running the operation, controlling and supervising the outsourced services (security and cleaning), also will oversee scheduling of maintenance services and problem solving for the clients.

Treasurer – responsible for the enrollment and acceptance of students in the residence, has the critical role of controlling the payments of clients and controlling the distribution of students in the residence.

Security – with the intend of giving students a controlled environment during night and day, where only clients can enter. Security will be positioned inside the building, overseeing the security cameras outside of the residence. This way, security can control everybody that enters and if necessary block access to unwanted individuals. However, if needed, should be receptive to help any of the clients.

Cleaning – maintaining the residence clean on the inside, the cleaning crew will clean common areas every day, except Sundays, while client's private apartments will be cleaned once a month.

Interns – to receive students in the month of September, three interns will be hired from the two universities, this way being responsible for the student's check-in in the residence.

With focus on the client, there will a constant monitor of the outsourced services, to make sure their function is being correctly done.

The Manager and treasurer, will receive initial training to guarantee the service provided is suitable and align with the residence’s mission and vision.

6.6 Planning

For a successful entry in the market, good planning is critical. With the academic year beginning in September, it is essential that the residence will be finish and ready to receive students before that. Knowing that, before starting the construction Lisbon’s City Hall must review and approve the project and that construction is projected to take 12 months to conclude, the project planning is developed in Figure 5:

Figure 5 - Project Planning

Activity	Description	Months																				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	Company	█	█	█																		
1.1	Presentation to	█																				
1.2	Finance approval by		█	█																		
1.3	Company formation			█																		
2	Project			█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
2.1	Licensing approval			█	█																	
2.2	Construction				█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
2.3	Equipment															█	█					
2.4	Hiring staff																█					
2.5	Engage outsourcings																				█	█
2.6	Final arrangements																				█	
3	Initiation phase																				█	█
3.1	Process																				█	
3.2	Staff training																				█	█
3.3	Quality control																				█	
3.4	Promotion																				█	█
3.5	Inauguration																					█

6.7 Financing

Lisbon’s City Hall are the only equity investors, since they are the only owners of the plot of land, were construction is planned. With the introduction of debt, we will assume that

the project will be financed by Caixa Geral de Depósitos program Caixa Imobiliário²². Being this the only financing option, with the capability of loaning more than two million euros and with information about interest rates available when researched. This program supports real estate investment with following terms:

Table 11 – Financing Conditions

Maximum loan value	90% of the smaller value between construction and evaluation value
Interest in the first 5 years	Fixed rate
Interest the following years	Euribor 12 months + Spread
Payment Period	5 to 30 years

Source: Condições de Financiamento Imóveis Caixa

Also, being a project of social and education interest the project should apply to a contest in axle seven of the program “Lisboa2020” and await approval, if approved a maximum of 50% of the project can be finance by this program, being the only obligations the non-refundability of the money and the constant monitoring of the company by the program Lisboa2020.

7. Economic and financial viability analysis

Evaluating a project’s viability is basically concluding if a project has the capacity to generate income that surpasses the capital invested. To get the answer, first we are going to check the project’s economic viability and in a second stage analyzing the impact of the introduction of different external funding sources. The different steps will be shown in the following subchapters.

7.1 Economic evaluation

The economic evaluation is used to analyze the economic or operational viability of the investment, if the project is fully financed with equity.

For the economic viability decision, all the cash flows generated by the investment are identified and considered. After acknowledging the operational risk attached, the cost of equity can be calculated, giving us the turnback that the investor is expecting to receive.

²² <https://www.caixaimobiliario.pt/credito.jsp>

Finally, we use the methodologies for the evaluation of the investment project net present value (NPV), internal rate of return (IRR), and payback period, in order to make an investment decision.

7.1.1 Cash Flows calculation

In order to determine the cash flows for the investment project we will calculate the value of sales, of investment in fixed assets and depreciations, cost of goods and outsourced services, salaries and working capital. Concluding with the result demonstration and the project's cash flows. All the assumptions and notes made for the presented calculations are exposed in Appendix IV – Economic and financial viability analysis.

7.1.1.1 Sales

For the sales forecast, we took into account the number of students enrolling in bachelor's programs. In 2016, almost 1700 students have enrolled in their first year in Cidade Universitária. We expect around 10% of these students to enroll in the residence. The residence's capacity is 352 students, so with an 45% capacity in the different apartments types, that will make up for 162 students enrolled in the residence in 2019. Continuing the forecast mentioned in previous chapters and knowing that foreign students will arrive in the second semester and during summer school, and that Portuguese students will enroll in another academic year looking for accommodations, it's expected an occupation rate of 65% and 85% in 2020 and 2021, respectively. After 2021, we assume a constant occupation rate of 95% until the end of the project.

This due to the fact that “Forças Armadas Residence” is the only public residence in the Cidade Universitária area and the first with a partnership with two universities. Also, since the project will belong to Lisbon's City Hall it's expected a certain promotion from them, since Lisbon's City Hall are the only equity investors.

In the reduced mobility apartments, were reduced mobility students have priority to rent over normal students, the total capacity is 22 students. In this apartment type the occupancy by reduced mobility students is expected to be 20% in the first year, with a total of 5 students. However, in the second and third year this rate will increase to 30% and 40%, maintaining a stable 55% until the end of the project.

To allow a steady operation during the first four activity years, inflation wasn't considered in the price practiced. However, with the beginning of the fifth activity year, to allow the rents to follow the growth of the economy, inflation was added to base price.

Concerning the sales in the commerce section, the residence has nine store spaces to rent to other companies, two of them reserved to the universities. It's expected that interested companies rent the space indefinitely and choose the space most suitable for their business. In the first year of activity, we assume that only store numbers 1 and 2, will be rented, since they are the only two stores facing Forças Armadas Avenue, while store 5 and 6 will be rented free of charge to the two universities has a show of goodwill and seeding future relations with the universities. At the beginning of the second year, with the increase of students living in the residence, demand for store spaces is expected to grow and consequently the renting of store numbers 3 and 4, being the closest stores to Forças Armadas Avenue available. Since the three remaining stores are the farthest from the main avenue, they are expected to be the more difficult to rent, to compensate this and the fact that store 8 (395 m²) has a large area comparing to the other stores, price per m² will be lower to facilitate renting of this store. We assume that it only be rented in the third activity year. While the remaining two stores (104 and 169 m²) will be left has unrented until the end of the project's life, because of their location and size in comparison with the remaining, has shown in Appendix IV – table 4.

The underground parking, will be divided into two separate sections, one with the minimum six hundred parking spaces that are required by City Hall in the plot of land were the construction is taking place. The other, belongs to the residence and we assume that, at the beginning of the investment project, only students and employees of the residence will use the parking spaces. However, if private companies show interest in renting parking spaces in the future, and if proven profitable, partnerships should be done with the interested companies to bring profitability to this space.

The information about residence sales and total sales can be consulted in Appendix IV – table 5 and 6.

7.1.1.2 Investment in fixed assets and depreciations

The investment in fixed assets equaled 12.402.208 euros and depreciations were calculated using the straight-line amortization method, were the acquisition value of the asset was divided by its expected lifetime. All invested assets were depreciated.

Assets depreciation can be consulted in Appendix IV – table 15.

7.1.1.3 Cost of Goods and Outsourced services

For the consideration of cost of goods and outsourced services it was assumed that these costs will only start in the month the activity begins.

In the cost of goods, it was considered daily consumptions in the public bathroom accessible to everybody (toilet paper and soap) and items clients will receive in their rooms when renting it (2 toilet paper rolls and 1 soap).

Cost of goods and prices can be consulted in Appendix IV – table 7 and 8.

In the outsourced services section, the fixed costs regarding security and cleaning were gathered through budgets provided by private companies specialized in these services. While, for the calculation of variable costs (electricity, water and gas) the method was the medium consumption of an average person multiplied by the number of clients in the residence, given us the total consumption of these services.

The cost of these services can be consulted in Appendix IV – table 9 and 10.

7.1.1.4 Salaries

Regarding the calculation of salaries, the salary of the residence manager, 1.400 euros, was calculated based on the average salary of store managers²³. The residence's treasurer will have a gross salary of 1.200 euros. Being these the only salaries of the permanent employees of the residence. While the interns, to help the residence with in-flow of students in September, will receive six hundred euro's each for that month.

All the salaries presented must pay the social security tax of 23.75%, supported by the company. The annual salary increase equal to the expected inflation in each year.

The chart for personnel expenses can be consulted in Appendix IV – Table 13 - Salaries.

7.1.1.5 Working Capital

Since it was considered that the investment in equipment and construction was done VAT free, working capital in 2018 was null. However, with the operation starting in 2019, working capital in year 1 will be negative, and will remain this way until the end of the

²³ <http://meusalario.pt/inicio/salario/compare-seu-salario?job-id=1420030000000#/>

project. Meaning that after year 1, current assets will be surpassed by the liabilities, allowing the financing of part of the activity.

For the determination of the project's working capital, the following receivable/payment periods are assumed:

- Average time to pay the Government – 1 month
- Average time to pay outsourced services – 1 month
- Average time to receive from clients – 1 months in advance
- Average time to receive from Government – 3 months

Also, it was assumed the inexistence of stocks of goods.

Working capital calculations can be consulted in Appendix IV – table 16.

7.1.1.6 Income Statement

Table 12 – Income Statement (first 5 years)

Year Base	2018	2019	2020	2021	2022	2023
Year	0	1	2	3	4	5
Sales	-	198.480	871.680	1.170.960	1.277.640	1.376.381
Cost of Goods	-	447	1.002	1.118	1.183	1.201
External Suppliers and Services - Variable Cost	-	37.809	124.358	161.003 €	180.060	182.761
Gross Contribution Margin	-	160.224	746.320	1.008.839	1.096.397	1.192.419
External Suppliers and Services - Fixed Cost	-	44.930	162.144	164.576	167.045	169.550
Economic Result	-	115.295	584.176	844.263	929.352	1.022.869
Personnel expenses	-	14.947	46.539	47.237	47.946	48.665
EBITDA	-	100.347	537.637	797.026	881.406	974.204
Depreciations	-	281.007	281.007	281.007	281.044	281.218
EBIT	-	-180.659	256.630	516.019	600.363	692.986
Taxes	-	-	16.168	108.364	126.076	145.527
EBIT(1-t)	-	-180.659	164.800	407.655	474.286	547.459
Net loss	0	180.659	1.018	0	0	0
Gross Margin	-	-	28%	35%	37%	40%

Thought the analyses of table 12 – Result Demonstration, it can be concluded that the net results or EBIT(1-t) of the project will only be positive after the second operational year (2020), due to the only four months of activity and the low occupancy rate presented in year 1. In the third year, with net results doubling in comparison with the previous year and the profit margin reaching 34%, this result represents the highest increase in the

projects net results and brings the project closer to its average profit margin of 35%, excluding the negative result of year 1. The complete income statement for the useful life of the investment project is presented in appendix IV – Table 17 - Income Statement.

7.1.1.7 Cash Flows

The cash flow map, displays the liquid investment in CAPEX, the liquid investment in working capital, the operational cash flow of the project and the residual value of both the working capital and CAPEX.

Table 13 – Cash Flow Map

Year Base	2018	2019	2020	2021	(2022-2037)	2037	2038	
Year	0	1	2	3	(...)	19	20	
Operational Cash Flow		100.347	521.469	688.448			1.009.085	1.023.305
Investment in CAPEX	12.402.208	0	0	2.546			0	0
Investment in Working Capital		-64796	-68.048	-63.123			-4.513	-4.581
CAPEX residual value								7.401.345
Working Capital residual value								-309.987
Cash Flow	-12.301.860	165.144	589.517	749.024			1.013.599	8.119.244

From the analysis of the table, it is possible to conclude that the project’s cash flow, will be negative in year 0, because of the investment in CAPEX and the inexistency of sales. In the following years, with the beginning of the operation, project’s cash flow becomes positive in 2019 and sharply increases in the next year. Although the project maintains a positive cash flow until the end of its lifetime, the discrepancy in the values presented is a result of reinvesting in assets, since it was assumed the reinvestment in fixed assets when assets were fully depreciated.

It was considered that residual values of working capital and CAPEX would be received in the last operational year and that CAPEX residual value was calculated using net book value (acquisition value – accumulated depreciations). In the building construction value, it was considered the estimated investment value. The terrain, as mentioned previous was

not considered its value in the investment, and consequently it is no take into account as well in the residual value of CAPEX. However, if the building is sold, the value of terrain must be considered since it is attached to the building. An alternative would be considering the market value of the building in 2038 as its residual value. However, with innumerable variables affecting directly that value and twenty years distancing us from that date, a more conservative approach was chosen.

Cash flow map can be consulted in Appendix IV – table 18.

7.1.2 Cost of Equity

The required return to an investment project is directly related with the risk of the investment. We use the *Capital Asset Pricing Model (CAPM)*(1), to determine the cost of equity:

$$\mathbf{R_u = R_f + \beta_u * (R_m - R_f)} \quad (1)$$

Where:

- $\beta_u = 0,693^{24}$ – market adjusted measure of operational risk for Real Estate (development) industry.
- R_f (Risk-free asset rate) = $3,09\%^{25}$ - Average 10 year Portuguese bond yield in the 1st of January of the last three years (2015-2017).
- $R_m - R_f = 5,69\%^{26}$ - Market return associated with countries with credit rating of Aaa.

Applying assumptions to the formula:

$$\mathbf{R_u = 3,09\% + 0,693 * (5,69\%)}$$

$$\mathbf{R_u = 7,035\%}$$

This was the rate used to discount the project's cash flows.

²⁴ Adjusted unlevered beta calculated using Levered and Unlevered betas by industry in Europe, associated with Real estate(Development) sector consulted in 14th of June 2017

<http://pages.stern.nyu.edu/~adamodar/>

²⁵ <https://pt.investing.com/rates-bonds/portugal-10-year-bond-yield>

²⁶ Risk premium for others markets, using total equity risk premium of countries with credit rating of Aaa consulted in 14th of June 2017 <http://pages.stern.nyu.edu/~adamodar/>

7.1.3 Assessing the economic viability of the project

To assess the economic viability of the present project, we use different evaluation criteria:

- Net Present Value (NPV), discounting the cash flows generated during the useful life of the project;
- Internal Rate of Return (IRR), represents the discount rate for which the NPV is zero, i.e., is the maximum rate an investor can require from the invested capital;
- Payback Period (PP), time required to regain the initial capital invested, i.e., the time required for the NPV to reach 0.

Applying the discount rate calculated previously to the project's cash flows, we will obtain a NPV of **-2.238.363€** an IRR of 5,08%. With these values, we can conclude that the project is not economically viable, with a deficit of 2.238.363€, that corresponds to the value needed to recover the investment after rewarding capitals at a rate of 7,035%, assuming the project is solely financed by equity. Ultimately, it was concluded that there was no payback period since the project isn't economic viable, it doesn't fully payback investors.

7.2 Capital structure and Adjusted Present Value of the project

This capital structure was assumed following Kosnett and Marquardt (2003). According to these authors, when investing in rental real estate we should never invest more than 25% of the asset's value with our own money, so that through funding the business can be scaled, and in case of a negative scenario we do not have a lot of money tied up in the business²⁷.

7.2.1 Assessing the global viability with a bank loan

The total investment value of the project is twelve million four hundred and two thousand two hundred and eight euros (12.402.208€), 25% of the value (3.100.552€) financed by equity and the remaining 75% by liabilities (9.301.656€).

²⁷ Similar to Damodaran's debt average of the sector in <http://pages.stern.nyu.edu/~adamodar/>

Table 14 – Financing Conditions applied to the project

Program Conditions		Application to the project
Maximum loan value	90% of the smaller value between construction and evaluation value	75% (9.301.656€)
Interest rate in the first 5 years	Fixed rate	1,5%
Interest rate in the following years	Euribor 12 months + Spread	0,279% + 3,2% = 3,479%
Payment Period	5 to 30 years	20 years

Source: Condições de Financiamento Imóveis Caixa

The forecasted value for the 12 month Euribor rate (0,279%), is equal to average value of this rate in first day of each year between 2013 and 2017. The spread value assumed and the fixed interest rate for the first five years are reference values from Caixa Geral de Depósitos program Caixa Imobiliário.

The payment period is 20 years. As referred above, the first five years of loan interest rate will be 1,5%, while in the following years the forecasted interest rate is 3,479% and loan amortization only begins at year 3.

With the introduction of debt in the project, using the loan presented above, the financial impact in the project must be calculated. We therefore compute the *Adjusted Present Value* (APV)²⁸ for the investment project:

$$\text{Adjusted Present Value} = \text{NPV}(\text{Ru}) + \text{NPV all financing side effects}, \quad (2)$$

With:

$$\text{NPV}(\text{Ru}) = -2.238.363\text{€}$$

$$\text{NPV all financing side effects} = 484.674\text{€}^{29}$$

Applying to the project:

²⁸ *Weighted Average Cost of Capital* (WACC) was considered for the global financial analysis; however with the project's capital structure changing every year with the loan payment, *Adjusted Present Value* was chosen as the appropriated evaluation method.

²⁹ Presented in appendix IV – table 19

NPV all financing side effects = 484.674€

Adjusted Present Value = -2.238.363€ + 484.674€

Adjusted Present Value = -1.753.688€

Putting together the economic decision and the financial impact of the loan, we able to conclude the global evaluation of the project; With an APV of -1.753.688€ we can conclude that the project is not globally viable. However, in this evaluation it was assumed that the project is going to pay its debt gradually until the end of its lifetime, meaning that in the end of year 20, the project will be considered debt free.

7.2.2 Assessing global viability with a bank loan and a subsidy

Maintaining the same capital structure, but with liabilities still representing 75% (9.301.656€) of the project's investment, divided in 35% financed by the bank loan with the same conditions presented previously and the remaining 40% financed by the Lisboa2020 program³⁰. The following scenario was considered, to calculate the impact of an approval by the Lisboa2020 council and consequently the financing of part of the project, being in this case assumed that the subsidy will represent 40% of the initial investment.

Table 15 – Financing Conditions and subsidy applied to the project

Program Conditions		Application to the project
Maximum subsidy value	50% of the project value	40% (4.960.883€)
Maximum loan value	90% of the smaller value between construction and evaluation value	35% (4.340.773€)
Interest rate in the first 5 years	Fixed rate	1,5%
Interest rate in the following years	Euribor 12 months + Spread	0,279% + 3,2% = 3,479%
Payment Period	5 to 30 years	20 years

Source: Condições de Financiamento Imóveis Caixa and Lisboa2020 program

³⁰ Detailed information in section 3.1.1

After assessing the NPV of the different obligations present above, the NPV all financing side effects can be calculated and consequently APV can be determined.

With:

NPV all financing side effects = NPV loan + NPV subsidy

NPV all financing side effects = 5.237.801€³¹

Consequently:

$$APV = NPV(Ru) + NPV \text{ all financing side effects} \quad (2)$$

$$APV = -2.238.363€ + 5.237.801€$$

$$APV = 2.999.437€$$

After putting together the economic decision with the financial impact of the loan and the subsidy, the global evaluation of the project can be reached. With an APV of 2.999.437€ we can conclude that the project is globally viable. This outcome is justified by the introduction of the subsidy in the project, with a NPV of 4.960.883€, the subsidy has no obligations attached, meaning that it is a great initial financial burst for the project. Has the example presented previously the project is going to be debt free by the 20th operational year and final year of the project.

7.3 Sensibility analysis

To conclude about the viability of the project, we also conduct a sensitivity analysis, where we alter six variables that we believe will have an impact on the value of the project. These variables are, the initial project investment, occupation rate after the 4th year, assumed market return, the 12 months Euribor, the financing structure of the investment project and the portion of subsidy used to finance the project in Section 7.2.2. The results are presented in Table 13.

³¹ Presented in appendix IV – table 20

Table 13 - Sensibility analysis

Sensibility Analysis			NPV (Ru)	APV (Loan)		APV(Loan + Subsidy)	
			-2.238.363	-1.753.689		2.999.437	
Variables	Base Value	Test Value	Value	Value	Variation	Value	Variation
					€		€
Initial Investment	12.402.208	-10%	-1.377.287	-941.080	812.609	3.336.733	337.296
		+10%	-3.099.439	-2.566.297	-812.609	2.662.141	-337.296
Occupation Rate after the 4th year	95%	+5%	-1.903.536	-1.418.861	334.828	3.334.265	334.828
		-5%	-2.573.191	-2.088.517	-334.828	2.664.609	-334.828
Market Return (Portugal)	5,69%	-2%	-732.483	-247.809	1.505.880	4.505.318	1.505.880
		+2%	-3.426.685	-2.942.010	-1.188.321	1.811.116	-1.188.321
12 months Euribor	0,279%	-1%	N.A.	-1.675.162	78.527	3.060.987	61.550
		+1%	N.A.	-1.840.912	-87.223	2.933.343	-66.094
Financing structure (D/E)	300%	+50%	N.A.	-1.735.738	17.951	3.021.415	21.978
		-50%	N.A.	-1.776.769	-23.080	2.971.180	-28.257
Subsidy (%)	40%	50%	N.A.	-1.753.689	N.A.	4.160.539	1.161.101
		30%	N.A.	-1.753.689		1.838.336	-1.161.101

Through the analysis of the table above, it is possible to conclude that the variables that have more impact in the project's viability are the initial investment, the expected market return and the project percentage financed through subsidy.

Focusing on the other variables, it was considered a variation of 5% in sales, a positive scenario occupation rate would be 100%, in this scenario the impact would be of 334.828€, meaning that the viability decisions would not change since the impact is lower than the loss in both cases were the project is not viable. In the negative scenario, occupation rate would stay at 90%, meaning that the impact in the viability decisions would be -334.828€, and again not changing any previous decisions.

The project's financing structure and the 12 month Euribor, are variables that only affect the project's global viability. The project's financing structure, assumes a base value of 300%, so in the positive scenario, debt-to-equity becomes 350%, meaning that the project's global viability increases 17.951€ when liabilities are fully financed by the loan, and 21.978€ when liabilities are financed by both the loan and the subsidy. While in the negative scenario, debt-to-equity decreases to 250%, and the project's APV will decrease 23.080€ when liabilities are fully financed by a loan and 28.257€ when the project is financed by both the loan and the subsidy.

The 12 month Euribor considered was 0,279%. In the positive scenario, using a 12 months Euribor rate of -0,721%, NPV rises 78.527€ when liabilities are fully financed by the loan and 61.550€ when liabilities are financed by both the loan and the subsidy. In the negative scenario, 12 months Euribor increases to 1,279%, leading to a decrease of the project's NPV in 87.223€, when externally financed by the loan, and 66.094€ when relying on the subsidy.

Concerning the initial investment, it was considered a 10% variation in this variable for the sensitivity analysis. In both positive and negatives scenarios, the impact is the same in terms of value, however in the positive scenario, the viability increases and in the negative it decreases, as expected. In the economic analysis, the impact of a 10% variation in initial investment corresponds to a 861.076€ impact on the project's viability, although when the project's liabilities are fully financed by the loan this impact decreases to 812.609€. When introducing the subsidy, this impact diminishes to 337.296€.

Expected market return is the variable with the biggest impact in the project, since it affects the discount rate of the project economically. It is assumed a variation of 2%, meaning expected market return would be 7,69% in the negative scenario, in this scenario economic the viability would be -3.426.685€ and the impact on the global viability would be -1.188.321€, the lowest values in this analysis. In the positive scenario, expected return would be 3,69%, leading to an economic viability study of -732.483€ and impact in global viability of 1.505.880€, the highest increase in the simulation.

Finally, the amount of the subsidy in the project considered is 40% of the initial investment. In the negative scenario, we assume it will decrease to 30%, leading to an APV of 1.838.336€. In the positive scenario, the subsidy increases 10% to 50%, rising APV to 4.160.539€. The impact in both cases was 1.161.101€.

Overall, we can conclude, as mentioned previously, that the variables expected market return and the subsidy are the variables with the biggest impact on the project. These are the variables that can drastically impact on the project's viability. However, a positive variation in these variables can also mean a great increase on the viability of the project.

8. Conclusion

The main objective of the present project is to conduct the study of the economic and financial viability of the construction of a public residence in the Cidade Universitária area, in Lisbon.

It is clear in our study that the number of university students moving to Lisbon every year has been significant over the last years, and it is expected to grow. It is also clear that public faculties in Lisbon are equipped with few infrastructures to respond to this high demand for accommodations. This opens opportunities to the private sector, which has profited with the increasing price of the rental market over the last years. Actually, real estate has flourished with overpriced and low quality/price real estate rentals. This creates the perfect opportunity for public entities, like, for example, the Lisbon City Hall, with vacant plots of lands to invest and, through partnerships, to offer students a better option than those currently available in the market.

With the research and work developed it is possible to build the marketing and operational strategy, giving the information about the project's positioning and differentiation factors. It is also possible to identify the project's critical success factors: including, location, price and access to common (kitchen and bathroom). This last factor being the main differentiation factor from the competition, since our project specifies a maximum of two students per kitchen and bathroom in the apartments.

To accomplish the main objective, the project is only globally viable when it is financed with both a loan and a subsidy for the Lisboa2020, and in this scenario the projects APV is 2.999.437€, reaching its payback in the last year of the project, with the residual values of CAPEX and working capital. The main variables that influence the project's viability are the subsidy and the expected market return. The subsidy, because the project needs a subsidy to remain viable without increasing the prices presented to the students and the expected market return, that is directly linked with the country's economic performance, meaning that a deceleration in performance can mean an increase in risk and consequently a decrease in viability.

One of the objectives, being a public project, is to develop a sustainable solution to the college accommodations sector in Lisbon, which is achieved by the project's capability to generate positive cash flows and potential to grow.

To conclude, the project has one main limitation, the plot of land where the residence is going to be built. In this work, the plot is considered free of charge, because City Hall has no interest on selling it. However, its value should have been taken into attention, because this asset after the construction will lose its original value and nevertheless this value should be considered as an initial investment cost.

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Appendix I – Competition Analysis

Table 1 – Analysis of private competition

Company Name	Type	Price range	Room size (m ²)
The Housing Concept	Company	200-550€	-
LisbonRooms	Residence	245-275€	10-25
Uhub	Residence	385-650€	11-22
Liv'in Lisbon	Company	360-670€	12-20
Domus Nostra	Residence	No information	
Colegio Universitário Pio XII	Residence	No information	
Residência Universitária Feminina	Residence	No information	
Residência Universitária dos Álamos	Residence	No information	
Houzes	Company	225-540€	9-18
SPRU	Residence	288-634€	12-24
Nine Student Living	Company	No information	
Residência Universitária de Maria Imaculada	Residence	No information	
Residência Universitária Nossa Senhora das Dores	Residence	No information	
Residência Universitária do Sagrado Coração de Maria	Residence	No information	
Residência Universitária Carmelita	Residence	No information	
Residência Universitária Montes Claros	Residence	No information	
Staytoo	Residence	400-600€	35-30

Table 2 – Analysis of public competition

Residences	Capacity	Bathroom	Kitchen	Price	University
António Aleixo	32	4	1	140€	University of Lisbon
Artilharia Um	54	14	2		
Benfica	50	18	2		
Campo Grande	74	13	2		
D. Dinis	No information				
Egas Moniz	141	36	1		
Monteiro Alves	46	14	1		
Erasmus	13	2	2		
Filipe Folque	78	23	2		
Gago Coutinho	23	6	1		
Leite Vasconcelos	20	6	2		
Luís de Camões	91	28	2		
Lumiar	59	23	2		
Monte Olivete	48	14	2		
Motricidade Humana 1	62	19	2		
Motricidade Humana 2	No information				
Ribeiro Santos	42	14	2		
Prof. Ramôa Ribeiro	82		3		
Tomás Ribeiro	31	5	2		
Instituto Superior de Agronomia	No information				
Engenheiro Duarte Pacheco	225	9			
Residência Universitária Professor José Pinto Peixoto	82	No information	at least 1	175-250€	ISCTE

Appendix II – Commerce analysis

Remax Research for commerce renting						
Store	Size (m ²)	Price (€)	Price per square meter(€)	Availability	Location	Reference
1	15	350	23,3	Available	Avenidas Novas	http://www.remax.pt/Lojas-Arrendamento-Avenidas-Novas-Lisboa_121491349-16
2	27	350	13,0	Not Available	Avenidas Novas	http://www.remax.pt/Lojas-Arrendamento-Avenidas-Novas-Lisboa_121961152-205
3	70	500	7,1	Available	Avenidas Novas	http://www.remax.pt/Lojas-Arrendamento-Avenidas-Novas-Lisboa_121701109-441
4	48	750	15,6	Available	Avenidas Novas	http://www.remax.pt/Lojas-Arrendamento-Avenidas-Novas-Lisboa_123251164-12
5	42	800	19,0	Available	Avenidas Novas	http://www.remax.pt/Lojas-Arrendamento-Avenidas-Novas-Lisboa_121021199-6
6	50	850	17,0	Not Available	Avenidas Novas	http://www.remax.pt/Lojas-Arrendamento-Avenidas-Novas-Lisboa_120801217-28
7	47	1.500	31,9	Not Available	Avenidas Novas	http://www.remax.pt/Lojas-Arrendamento-Avenidas-Novas-Lisboa_120261367-5
8	275	1.700	6,2	Available	Avenidas Novas	http://www.remax.pt/Lojas-Arrendamento-Avenidas-Novas-Lisboa_121021171-13
9	63	1.950	31,0	Available	Avenidas Novas	http://www.remax.pt/Lojas-Arrendamento-Avenidas-Novas-Lisboa_121291179-18
10	490	3.500	7,1	Not Available	Avenidas Novas	http://www.remax.pt/Lojas-Arrendamento-Avenidas-Novas-Lisboa_120181028-2312
11	341	5.500	16,1	Available	Avenidas Novas	http://www.remax.pt/Lojas-Arrendamento-Avenidas-Novas-Lisboa_120801248-31
12	654	5.900	9,0	Available	Avenidas Novas	http://www.remax.pt/Lojas-Arrendamento-Avenidas-Novas-Lisboa_120521214-77
13	622	7.000	11,3	Available	Avenidas Novas	http://www.remax.pt/Lojas-Arrendamento-Avenidas-Novas-Lisboa_120521213-22
14	670	13.000	19,4	Available	Avenidas Novas	http://www.remax.pt/Lojas-Arrendamento-Avenidas-Novas-Lisboa_121491232-147
15	40	600	15,0	Not Available	Alvalade	http://www.remax.pt/Lojas-Arrendamento-Alvalade-Lisboa_120611193-283
16	49	600	12,2	Available	Alvalade	http://www.remax.pt/Lojas-Arrendamento-Alvalade-Lisboa_121961377-20
17	45	750	16,7	Available	Alvalade	http://www.remax.pt/Lojas-Arrendamento-Alvalade-Lisboa_121211093-161
18	80	1.000	12,5	Not Available	Alvalade	http://www.remax.pt/Lojas-Arrendamento-Alvalade-Lisboa_120611223-117
19	230	1.400	6,1	Available	Alvalade	http://www.remax.pt/Lojas-Arrendamento-Alvalade-Lisboa_123441101-26
20	526	1.990	3,8	Available	Alvalade	http://www.remax.pt/Lojas-Arrendamento-Alvalade-Lisboa_120801218-26
21	138	2.350	17,0	Available	Alvalade	http://www.remax.pt/Lojas-Arrendamento-Alvalade-Lisboa_122611067-57
22	264	2.400	9,1	Available	Alvalade	http://www.remax.pt/Lojas-Arrendamento-Alvalade-Lisboa_123751149-3
23	245	2.600	10,6	Not Available	Alvalade	http://www.remax.pt/Lojas-Arrendamento-Alvalade-Lisboa_120611223-61
24	200	7.000	35,0	Available	Alvalade	http://www.remax.pt/Lojas-Arrendamento-Alvalade-Lisboa_123251164-13
Average of price per square meter excluding the stores at yellow			15,0			

Appendix III – Location and Implementation

Location

Satellite image of Forças Armadas avenue and surrounding faculties



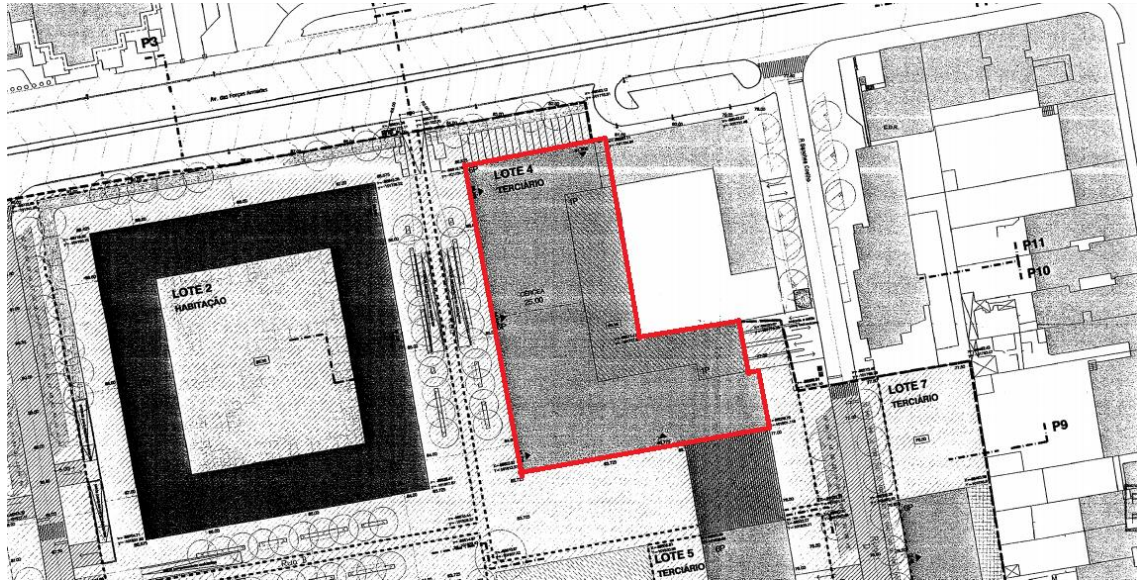
Legend:

- Forças Armadas residence
- ISCTE
- University of Lisbon faculties
- Access to subway (yellow line)

Plot of land for construction



Lisbon's City Hall plants from "Loteamento das Forças Armadas"



Forças Armadas street view



North view



Southeast view



Residence Plants

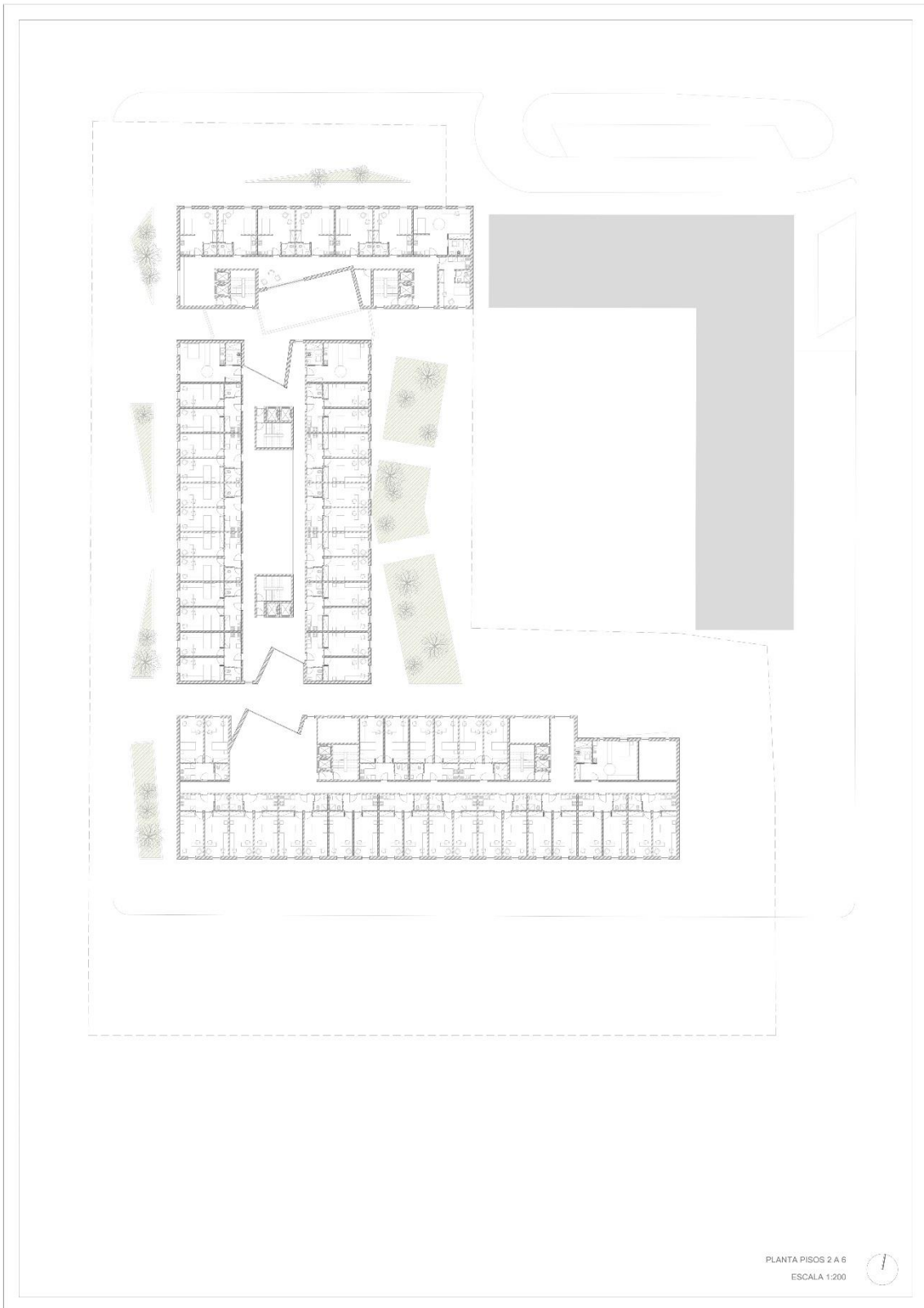
Floor 0



Floor 1



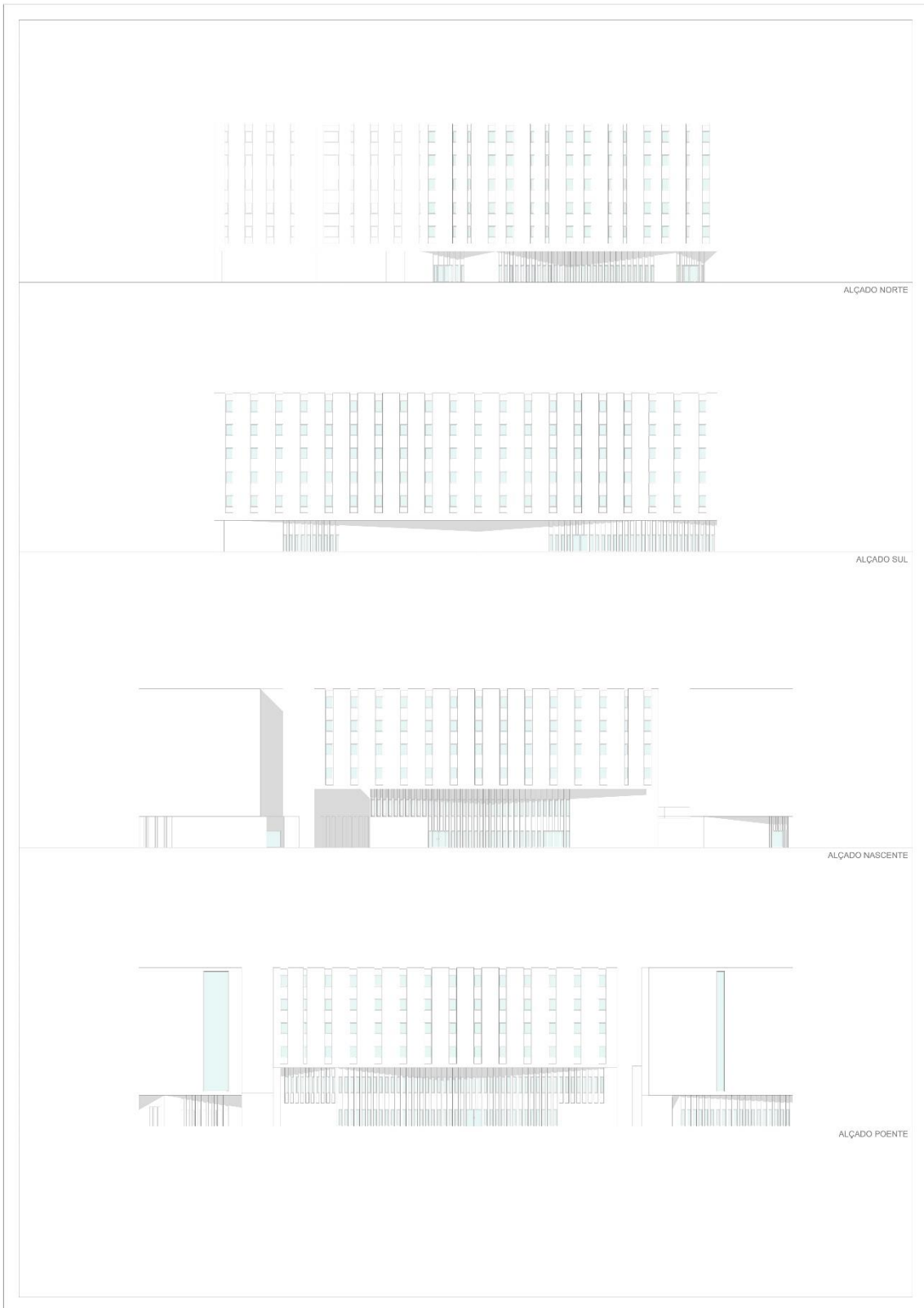
Floor 2 to 6



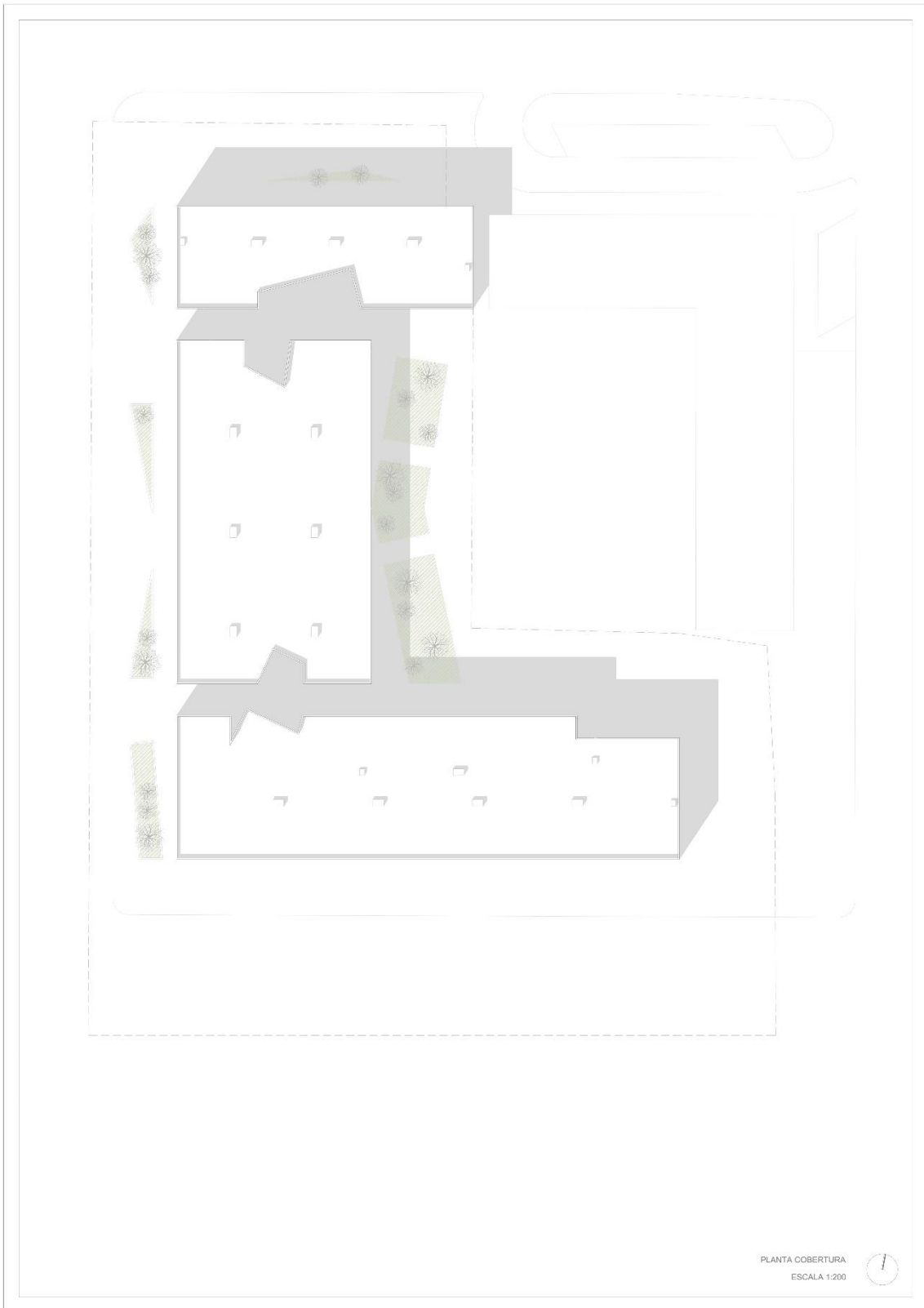
PLANTA PISOS 2 A 6
ESCALA 1:200



Side view



Top view



Appendix IV – Economic and financial viability analysis

Geral Assumptions

- The residence begins operation in the 1st of September of 2019
- The values were calculated at current prices, having in consideration an inflation rate of 1,5% (considered in every year, except the first five years where it was not considered in the price of sales)
- Rate of income taxes considered was 21% (2017) in every year of the project, consulted in <http://www.pwc.pt/pt/pwcinformaco/guia-fiscal/2016/irc/taxas-de-irc.html>
- Social security contribution rate supported by the employer considered was 23,75%, consulted in http://www.seg-social.pt/documents/10152/13311/Guia_taxas+Contributivas_set2015.pdf/d96972fb-a15b-4f57-80f8-d06a65b1535f
- Value added tax considered was 23% (2017) in every year of the project, consulted in <http://www.deloitte-guiafiscal.com/iva/taxas-de-iva>
- The depreciation rates considered in the project, were consulted in https://info.portaldasfinancas.gov.pt/NR/rdonlyres/837A0763-5211-459B-B2D3-5A4CF90CC04A/0/Dec_Regulamentar25_2009.pdf
- It was considered that the project was free of Municipal taxes, being a municipal project.
- The plot of land where the residence will be built belongs to Lisbon's City Hall, and being this a municipal project it was considered no cost.
- Average time to receive from clients considered was 0, since clients will pay when renting.
- Average time to pay outsourced services considered was 1 month, to pay the government was 1 month (Social Security and VAT) and to receive from the Government was 3 months.
- It was assumed an existence of stocks of goods.

Table 3 – Macroeconomic Assumptions

Year	0	1	2	3	4	5	6	7	8	9	10
Inflation Rate	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%
Cumulative Inflation Factor	1,00	1,02	1,03	1,05	1,06	1,08	1,09	1,11	1,13	1,14	1,16

Table 3 – Macroeconomic Assumptions (cont.)

Year	11	12	13	14	15	16	17	18	19	20
Inflation Rate	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%
Cumulative Inflation Factor	1,18	1,20	1,21	1,23	1,25	1,27	1,29	1,31	1,33	1,35

Table 4 – Price of Commerce stores

	Dimension	Value per square meter	Monthly rent	Year expected to be rented
Store 1	37	16,8€	620€	1
Store 2	66	16,7€	1.100€	1
Store 3	88	13,6€	1.200€	2
Store 4	76	13,6€	1.030€	2
Store 5	111	University of Lisbon		1
Store 6	79	ISCTE		1
Store 7	104	Not rented		
Store 8	395	11,4€	4.500€	3
Store 9	169	Not rented		

Table 5 – Residence Sales

Year	0	1	2	3	4	5	6	7	8	9	10
One-Person Apartments	0	26.600	117.600	151.200	168.000	180.984	183.698	186.454	189.251	192.090	194.971
Reduced Mobility Apartments	0	19.400	75.000	91.800	87.600	94.370	95.786	97.222	98.681	100.161	101.663
Two-Person Apartments	0	145.600	631.680	826.560	920.640	991.791	1.006.668	1.201.768	1.037.094	1.052.651	1.068.440
Total Residence sales	0	191.600	824.280	1.069.560	1.176.240	1.267.145	1.286.152	1.305.444	1.325.026	1.344.901	1.365.075
VAT from sales	0	35.828	154.134	199.999	219.947	236.946	240.500	244.107	247.769	251.486	255.258

Table 5 – Residence Sales (cont.)

Year	11	12	13	14	15	16	17	18	19	20
One-Person Apartments	197.895	200.864	203.877	206.935	210.039	213.190	216.387	219.633	222.928	226.272
Reduced Mobility Apartments	103.188	104.736	106.307	107.902	109.520	111.163	112.831	114.523	116.241	117.984
Two-Person Apartments	1.084.467	1.100.734	1.117.245	1.134.004	1.151.014	1.168.279	1.185.803	1.203.590	1.221.644	1.239.969
Total Residence sales	1.385.551	1.406.334	1.427.429	1.448.840	1.470.573	1.492.632	1.515.021	1.537.746	1.560.813	1.584.225
VAT from sales	259.087	262.973	266.918	270.921	274.985	279.110	283.297	287.546	291.859	296.237

Table 6 – Total sales

Base year	0	1	2	3	4	5	6	7	8	9	10	11
Year	0	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Residence	0	191.600	824.280	1.069.560	1.176.240	1.267.145	1.286.152	1.305.444	1.325.026	1.344.901	1.365.075	1.385.551
Commerce	0	6.880	47.400	101.400	101.400	109.237	110.875	112.538	114.226	115.940	117.679	119.444
Total Sales	0	198.480	871.680	1.170.960	1.277.640	1.376.381	1.397.027	1.417.982	1.439.252	1.460.841	1.482.753	1.504.995

Table 6 – Total sales (cont.)

Base year	12	13	14	15	16	17	18	19	20
Year	2030	2031	2032	2033	2034	2035	2036	2037	2038
Residence	1.406.334	1.427.429	1.448.840	1.470.573	1.492.632	1.515.021	1.537.746	1.560.813	1584.225
Commerce	121.236	123.054	124.900	126.774	128.675	130.605	132.564	134.553	136.571
Total Sales	1.527.570	1.550.483	1.573.740	1.597.346	1.621.307	1.645.626	1.670.311	1.695.365	1.720.796

Table 7 – Goods Consumption and Price

Goods	Daily consumption	Consumption when renting	Price per unit (VAT included)
Toilet paper rolls	7	0	0,13
Soap refills (5 liters)	0,1	2	8,99
Soap	0	1	1,12

Table 8 – Cost of Goods

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Toilet paper rolls	0	154	400	425	440	447	454	461	467	474	482	489	496	504	511	519	527	534	542	551	559
Soap	0	184	269	355	399	405	411	418	424	430	437	443	450	457	464	470	478	485	492	499	507
Soap refills	0	109	333	338	343	349	354	359	365	370	376	381	387	393	399	405	411	417	423	429	436
Cost of Goods (VAT included)	0	447	1.002	1.118	1.183	1.201	1.219	1.237	1.256	1.275	1.294	1.313	1.333	1.353	1.373	1.394	1.415	1.436	1.458	1.479	1.502
VAT	0	84	187	209	221	225	228	231	235	238	242	246	249	253	257	261	265	269	273	277	281
Cost of Goods consumed	0	364	815	909	962	976	991	1.006	1.021	1.036	1.052	1.068	1.084	1.100	1.117	1.133	1.150	1.168	1.185	1.203	1.221

Table 9 – Price of Variable Costs

	Cost per unit	Average Consumption per capita
Price of Water	1,5477 €/m ³	63 m ³
Price of Gas	0,0609 €/kwh	2847,4 kwh
Price of Electricity (VAT included)	0,1626 €/kwh	1156,1 kwh

Table 10 – Variable Costs

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13
Water	0	5.665	24.810	32.747	36.858	37.411	37.972	38.542	39.120	39.707	40.303	40.907	41.521	42.144
Gas	0	11.690	44.122	58.239	65.550	66.534	67.532	68.545	69.573	70.616	71.676	72.751	73.842	74.950
Electricity	0	10.303	45.124	59.560	67.038	68.043	69.064	70.100	71.151	72.219	73.302	74.401	75.518	76.650
Communications	0	10.150	10.302	10.457	10.614	10.773	10.934	11.098	11.265	11.434	11.605	11.779	11.956	12.136
Variable Cost (VAT included)	0	37.809	124.358	161.003	180.060	182.761	185.502	188.285	191.109	193.976	196.886	199.839	202.836	205.879
VAT	0	14.583	28.395	34.338	37.493	38.055	38.626	39.205	39.794	40.390	40.996	41.611	42.235	42.869

Table 10 – Variable Costs (cont.)

Year	14	15	16	17	18	19	20
Water	42.776	43.417	44.069	44.730	45.401	46.082	46.773
Gas	76.074	77.215	78.373	79.549	80.742	81.953	83.182
Electricity	77.800	78.967	80.152	81.354	82.574	83.813	85.070
Communications	12.318	12.502	12.690	12.880	13.073	13.270	13.469
Variable Cost (VAT included)	208.967	212.102	215.283	218.512	221.790	225.117	228.494
VAT	43.512	44.165	44.827	45.500	46.182	46.875	47.578

Table 11 – Price of Fixed Costs

	Monthly Cost	Company
Cleaning (VAT excluded)	2.157€	Safira
Security (VAT included)	10.958,56€	2045

Table 12 – Fixed Costs

Year	0	1	2	3	4	5	6	7	8	9	10	11
Cleaning	0	10.772	32.800	33.292	33.791	34.298	34.812	35.334	35.865	36.402	36.949	37.503
Security	0	44.492	166.637	169.137	171.674	174.249	176.863	179.516	182.208	184.941	187.716	190.531
Total Fixed Cost (VAT included)	0	55.263	199.437	202.428	205.465	208.547	211.675	214.850	218.073	221.344	224.664	228.034
VAT	0	10.334	37.293	37.852	38.420	38.997	39.581	40.175	40.778	41.390	42.010	42.641
Total Fixed Cost	0	44.930	162.144	164.576	167.045	169.550	172.093	174.675	177.295	179.954	182.654	185.394

Table 12 – Fixed Costs (cont.)

Year	11	12	13	14	15	16	17	18	19	20
Cleaning	37.503	38.065	38.636	39.216	39.804	40.401	41.007	41.622	42.247	42.880
Security	190.531	193.389	196.290	199.234	202.223	205.256	208.335	211.460	214.632	217.852
Total Fixed Cost (VAT included)	228.034	231.455	234.926	238.450	242.027	245.657	249.342	253.082	256.879	260.732
VAT	42.641	43.280	43.929	44.588	45.257	45.936	46.625	47.324	48.034	48.755
Total Fixed Cost	185.394	188.174	190.997	193.862	196.770	199.721	202.717	205.758	208.844	211.977

Table 13 – Personnel expenses

	Number of employees	Salary	Months	0	1	2	3	4	5	6	7	8	9	10	11
Manager	1	1400	14	0	5.684	20.192	20.495	20.803	21.115	21.431	21.753	22.079	22.410	22.747	23.088
Treasurer	1	1200	14	0	4.872	17.308	17.567	17.831	18.098	18.370	18.645	18.925	19.209	19.497	19.790
Interns	3	500	1	0	1.523	1.545	1.569	1.592	1.616	1.640	1.665	1.690	1.715	1.741	1.767
Personnel expenses				0	12.079	39.046	39.631	40.226	40.829	41.441	42.063	42.694	43.334	43.984	44.644
Social Security (23,75%)				0	2.869	7.494	7.606	7.720	7.836	7.953	8.073	8.194	8.317	8.441	8.568
Total Personnel expenses				0	14.947	46.539	47.237	47.946	48.665	49.395	50.136	50.888	51.651	52.426	53.212

Table 13 – Personnel expenses (cont.)

	12	13	14	15	16	17	18	19	20
Manager	23.434	23.786	24.142	24.505	24.872	25.245	25.624	26.008	26.398
Treasurer	20.086	20.388	20.693	21.004	21.319	21.639	21.963	22.293	22.627
Interns	1.793	1.820	1.848	1.875	1.903	1.932	1.961	1.990	2.020
Personnel expenses	45.314	45.994	46.684	47.384	48.095	48.816	49.548	50.291	51.046
Social Security (23,75%)	8.697	8.827	8.959	9.094	9.230	9.369	9.509	9.652	9.797
Total Personnel expenses	54.011	54.821	55.643	56.478	57.325	58.185	59.057	59.943	60.842

Table 14 – Construction estimate

Designation	Size	Price per square meter	Total Cost
Gross terrain area	7.752		
Funcional/Logistical/Public areas	12.135	500,00 €	6.067.500€
Residencial areas	5.979	700,00 €	4.185.300€
Underground	5.334	300,00 €	1.600.200€
Exterior terrain	5.601	50,00 €	280.050€
Total Cost			12 133 050,00 €

Table 15 – Asset Depreciation

Legal Code	Type of Asset	Depreciation Rate	Acquisition Value	1	2	3	4	5	6
2010 2015	Building	2%	12.133.050	242.661	242.661	242.661	242.661	242.661	242.661
1655	Furniture	12,5%	173490	21.686	21.686	21.686	21.686	21.686	21.686
1660	Bedding and Blankets	20,0%	22.891	4.578	4.578	4.578	4.578	4.578	
								24.661	4.932
1670	Tableware and articles made of glass	33,3%	2.435	812	812	812			2.663
						2.546	849	849	849
1675	Cutlery and kitchen utensils	25,0%	3.382	846	846	846	846		
							3.590	897	897
1680	Machines, gadgets, utensils and installations for specific purpose	14,3%	58.470	8.353	8.353	8.353	8.353	8.353	8.353
2240	Computers	25,0%	7.398	1.850	1.850	1.850	1.850		
							7.852	1.963	1.963
2251	Telephones	20,0%	85	17	17	17	17	17	
								92	18
2300	Fire fighting material	25,0%	567	142	142	142	142		
							602	150	150
2315	Televisions	14%	439	63	63	63	63	63	63
Investment in Equipment			12.402.208			2.546	12.044	24.753	2.663
Total Depreciations				281.007	281.007	281.007	281.044	281.218	281.573
Liquid Invesment			12.402.208	12.121.201	11.840.194	11.561.734	11.292.734	11.036.269	10.757.358

Table 15 – Asset Depreciation (cont.)

Legal Code	Depreciation Rate	7	8	9	10	11	12	13	14
2010 2015	2%	242.661	242.661	242.661	242.661	242.661	242.661	242.661	242.661
1655	12,5%	21.686	21.686						
			195.435	24.429	24.429	24.429	24.429	24.429	24.429
1660	20,0%				26.566	5.313	5.313	5.313	5.313
		4.932	4.932	4.932	4.932				
1670	33,3%	888	888	888			2.911	970	970
				2.784	928	928	928		
1675	25,0%		3.810	952	952	952	952		
		897	897				4.044	1.011	1.011
1680	14,3%	8.353							72.020
		64.892	9.270	9.270	9.270	9.270	9.270	9.270	9.270
2240	25,0%		8.334	2.084	2.084	2.084	2.084		
		1.963	1.963				8.846	2.211	2.211
2251	20,0%				99	20	20	20	20
		18	18	18	18				
2300	25,0%		639	160	160	160	160		
		150	150				678	169	169
2315	14%	63							
		487	70	70	70	70	70	70	70
Investment in Equipment		65.379	208.218	2.784	26.665	0	16.479	0	72.020
Total Depreciations		281.612	282.536	285.464	285.505	285.887	285.887	286.126	286.126
Liquid Investment		10.541.126	10.466.808	10.184.128	9.925.289	9.639.402	9369.993	9.083.868	8.869.762

Table 15 – Asset Depreciation (cont.)

Legal Code	Depreciation Rate	15	16	17	18	19	20
2010 2015	2%	242.661	242.661	242.661	242.661	242.661	242.661
1655	12,5%		220.156	27.519	27.519	27.519	27.519
		24.429	24.429				
1660	20,0%	5.313					
		28.620	5.724	5.724	5.724	5.724	5.724
1670	33,3%	970			3.184	1.061	1.061
		3.044	1.015	1.015	1.015		
1675	25,0%		4.292	1.073	1.073	1.073	1.073
		1.011	1.011				
1680	14,3%	10.289	10.289	10.289	10.289	10.289	10.289
2240	25,0%		9.388	2.347	2.347	2.347	2.347
		2.211	2.211				
2251	20,0%	20					
		107	21	21	21	21	21
2300	25,0%		720	180	180	180	180
		169	169				
2315	14%	549	78	78	78	78	78
		70					
Investment in Equipment		32.320	234.556	0	3.184	0	0
Total Depreciations		287.144	287.609	290.907	290.907	290.954	290.954
Liquid Investment		8.614.938	8.561.884	8.270.977	7.983.253	7.692.299	7.401.345

Table 16 – Working Capital

	0	1	2	3	4	5	6	7	8	9	10
Current Assets											
Government	0	31.252	112.441	114.185	115.925	117.663	119.428	121.220	123.038	124.884	126.757
Total	0	31.252	112.441	114.185	115.925	117.663	119.428	121.220	123.038	124.884	126.757
Current Liabilities											
Government	0	38.696	161.627	207.605	227.667	244.782	248.453	252.180	255.963	259.802	263.699
Outsources services	0	9.452	14.968	13.417	15.005	15.230	15.459	15.690	15.926	16.165	16.407
Student Deposit	0	47.900	68.690	89.130	98.020	105.595	107.179	108.787	110.419	112.075	113.756
Total	0	96.048	245.286	310.152	340.692	365.607	371.091	376.658	382.307	388.042	393.863
Working Capital	0	-64.796	-132.844	-195.967	-224.768	-247.944	-251.663	-255.438	-259.269	-263.158	-267.106
Working Capital Investment	0	-64.796	-68.048	-63.123	-28.801	-23.176	-3.719	-3.775	-3.832	-3.889	-3.947

Table 16 – Working Capital (cont.)

	11	12	13	14	15	16	17	18	19	20
Current Assets										
Government	128.658	130.588	132.547	134.535	136.553	138.601	140.681	142.791	144.933	147.107
Total	128.658	130.588	132.547	134.535	136.553	138.601	140.681	142.791	144.933	147.107
Current Liabilities										
Government	267.655	271.670	275.745	279.881	284.079	288.340	292.665	297.055	301.511	306.034
Outsources services	16.653	16.903	17.157	17.414	17.675	17.940	18.209	18.483	18.760	19.041
Student Deposit	115.463	117.194	118.952	120.737	122.548	124.386	126.252	128.146	130.068	132.019
Total	399.771	405.767	411.854	418.031	424.302	430.666	437.126	443.683	450.339	457.094
Working Capital	-271.112	-275.179	-279.307	-283.496	-287.749	-292.065	-296.446	-300.893	-305.406	-309.987
Working Capital Investment	-4.007	-4.067	-4.128	-4.190	-4.252	-4.316	-4.381	-4.447	-4.513	-4.581

Table 17 – Income Statement

Year Base	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Year	0	1	2	3	4	5	6	7	8	9	10
Sales	-	198.480	871.680	1.170.960	1.277.640	1.376.381	1.397.027	1.417.982	1.439.252	1.460.841	1.482.753
Cost of Goods	-	447	1.002	1.118	1.183	1.201	1.219	1.237	1.256	1.275	1.294
External Suppliers and Services - Variable Cost	-	37.809	124.358	161.003 €	180.060	182.761	185.502	188.285	191.109	193.976	196.886
Gross Contribution Margin	-	160.224	746.320	1.008.839	1.096.397	1.192.419	1.210.305	1.228.460	1.246.887	1.265.590	1.284.574
External Suppliers and Services - Fixed Cost	-	44.930	162.144	164.576	167.045	169.550	172.093	174.675	177.295	179.954	182.654
Economic Result	-	115.295	584.176	844.263	929.352	1.022.869	1.038.212	1.053.785	1.069.592	1.085.636	1.101.920
Personnel expenses	-	14.947	46.539	47.237	47.946	48.665	49.395	50.136	50.888	51.651	52.426
EBITDA	-	100.347	537.637	797.026	881.406	974.204	988.817	1.003.649	1.018.704	1.033.984	1.049.494
Depreciations	-	281.007	281.007	281.007	281.044	281.218	281.573	281.612	282.536	285.464	285.505
EBIT	-	-180.659	256.630	516.019	600.363	692.986	707.244	722.037	736.168	748.520	763990
Taxes	-	-	16.168	108.364	126.076	145.527	148.521	151.628	154.595	157.189	160.438
EBIT(1-t)	-	-180.659	164.800	407.655	474.286	547.459	558.723	570.410	581.573	591.331	603.552
Net loss	0	180.659	1.018	0	0	0	0	0	0	0	0
Gross Margin	-	-	28%	35%	37%	40%	40%	40%	40%	40%	41%

Table 17 – Income Statement (cont.)

Year Base	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Year	11	12	13	14	15	16	17	18	19	20
Sales	1.504.995	1.527.570	1.550.483	1.573.740	1.597.346	1.621.307	1.645.626	1.670.311	1.695.365	1.720.796
Cost of Goods	1.313	1.333	1.353	1.373	1.394	1.415	1.436	1.458	1.479	1.502
External Suppliers and Services - Variable Cost	199.839	202.836	205.879	208.967	212.102	215.283	218.512	221.790	225.117	228.494
Gross Contribution Margin	1.303.843	1.323.400	1.343.251	1.363.400	1.383.851	1.404.609	1.425.678	1.447.063	1.468.769	1.490.800
External Suppliers and Services - Fixed Cost	185.394	188.174	190.997	193.862	196.770	199.721	202.717	205.758	208.844	211.977
Economic Result	1.118.449	1.135.226	1.152.254	1.169.538	1.187.081	1.204.887	1.222.961	1.241.305	1.259.925	1.278.823
Personnel expenses	53.212	54.011	54.821	55.643	56.478	57.325	58.185	59.057	59.943	60.842
EBITDA	1.065.237	1.081.215	1.097.433	1.113.895	1.130.603	1.147.562	1.164.776	1.182.247	1.199.981	1.217.981
Depreciations	285.887	285.887	286.126	286.126	287.144	287.609	290.907	290.907	290.954	290.954
EBIT	779.349	795.328	811.308	827.769	843.459	859.953	873.868	891.340	909.027	927.027
Taxes	163.663	167.019	170.375	173.832	177.126	180.590	183.512	187.181	190.896	194.676
EBIT(1-t)	615.686	628.309	640.933	653.938	666.333	679.363	690.356	704.159	718.132	732.351
Net loss	0	0	0	0	0	0	0	0	0	0
Gross Margin	41%	41%	41%	42%	42%	42%	42%	42%	42%	43%

Table 18 – Cash Flow Map

Year Base	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Year	0	1	2	3	4	5	6	7	8	9	10	11
Operational Cash Flow		100.347	521.469	688.448	755.330	828.677	840.296	852.021	864.109€	876.795	889.056	901.573
Investment in CAPEX	12.402.208	0	0	2.546	12.044	24.753	2.663	65.379	208.218	2.784	26.665	0
Investment in Working Capital		-64796	-68.048	-63.123	-28.801	-23.176	-3.719	-3.775	-3.832	-3.889	-3.947	-4.007
CAPEX residual value												
Working Capital residual value												
Cash Flow	-12.301.860	165.144	589.517	749.024	772.087	827.100	841.352	790.417	659.723	877.900	866.338	905.580

Table 18 – Cash Flow Map (cont.)

Year Base	2030	2031	2032	2033	2034	2035	2036	2037	2038
Year	12	13	14	15	16	17	18	19	20
Operational Cash Flow	914.196	927.059	940.063	953.477	966.972	981.263	995.066	1.009.085	1.023.305
Investment in CAPEX	16.479	0	72.020	32.320	234.556	0	3.184	0	0
Investment in Working Capital	-4.067	-4.128	-4.190	-4.252	-4.316	-4.381	-4.447	-4.513	-4.581
CAPEX residual value									7.401.345
Working Capital residual value									-309.987
Cash Flow	901.784	931.186	872.233	925.410	736.733	985.644	996.329	1.013.599	8.119.244

Table 19 – Loan Transactions Map

	0	1	2	3	4	5	6	7	8	9	10
Capital in debt (beginning)	0	9.301.656	9.301.656	9.301.656	8.784.897	8.268.138	7.751.380	7.234.621	6.717.862	6.201.104	5.684.345
Payment	-	139.525	139.525	656.283	648.532	640.781	786.445	768.466	750.487	732.507	714.528
Interests	-	139.525	139.525	139.525	131.773	124.022	269.686	251.707	233.728	215.749	197.770
Amortization	-	0	0	516.759	516.759	516.759	516.759	516.759	516.759	516.759	516.759
Capital in debt (end)	9.301.656	9.301.656	9.301.656	8.784.897	8.268.138	7.751.380	7.234.621	6.717.862	6.201.104	5.684.345	5.167.586
Interests tax shield	-	29.300	29.300	29.300	27.672	26.045	56.634	52.858	49.083	45.307	41.532
Outflow	-	110.225	110.225	626.983	620.860	614.736	729.811	715.607	701.404	687.200	672.997
Loan Cash Flows	9.301.656	-110.225	-110.225	-626.983	-620.860	-614.736	-729.811	-715.607	-701.404	-687.200	-672.997
Loan's NPV	484.674										
All-in Cost	2,03%										

Table 19 – Loan Transactions Map (cont.)

	11	12	13	14	15	16	17	18	19	20
Capital in debt (beginning)	5.167.586	4.650.828	4.134.069	3.617.311	3.100.552	2.583.793	2.067.035	1.550.276	1.033.517	516.759
Payment	696.549	678.570	660.591	642.612	624.633	606.654	588.675	570.696	552.717	534.738
Interests	179.791	161.812	143.833	125.853	107.874	89.895	71.916	53.937	35.958	17.979
Amortization	516.759	516.759	516.759	516.759	516.759	516.759	516.759	516.759	516.759	516.759
Capital in debt (end)	4.650.828	4.134.069	3.617.311	3.100.552	2.583.793	2.067.035	1.550.276	1.033.517	516.759	0
Interests tax shield	37.756	33.980	30.205	26.429	22.654	18.878	15.102	11.327	7.551	3.776
Outflow	658.793	644.590	630.386	616.183	601.979	587.776	573.572	559.369	545.166	530.962
Loan Cash Flows	-658.793	-644.590	-630.386	-616.183	-601.979	-587.776	-573.572	-559.369	-545.166	-530.962

Table 20 – Loan Transactions Map with subsidy introduction

	0	1	2	3	4	5	6	7	8	9	10
Capital in debt (beginning)		4.340.773	4.340.773	4.340.773	4.099.619	3.858.465	3.617.311	3.376.156	3.135.002	2.893.848	2.652.694
Payment		65.112	65.112	306.266	302.648	299.031	295.414	358.617	350.227	341.837	333.447
Interests		65.112	65.112	65.112	61.494	57.877	54.260	117.463	109.073	100.683	92.293
Amortization		0	0	241.154	241.154	241.154	241.154	241.154	241.154	241.154	241.154
Capital in debt (end)	4.340.773	4.340.773	4.340.773	4.099.619	3.858.465	3.617.311	3.376.156	3.135.002	2.893.848	2.652.694	2.411.540
Interests tax shield		13.673	13.673	13.673	12.914	12.154	11.395	24.667	22.905	21.143	19.381
Outflow		51.438	51.438	292.592	289.735	286.877	284.019	333.950	327.322	320.693	314.065
Loan Cash Flows	4.340.773	-51.438	-51.438	-292.592	-289.735	-286.877	-284.019	-333.950	-327.322	-320.693	-314.065
Loan and subsidy NPV	5.237.801										

Table 20 – Loan Transactions Map with subsidy introduction (cont.)

	11	12	13	14	15	16	17	18	19	20
Capital in debt (beginning)	2.411.540	2.170.386	1.929.232	1.688.078	1.446.924	1.205.770	964.616	723.462	482.308	241.154
Payment	325.056	316.666	308.276	299.886	291.495	283.105	274.715	266.325	257.934	249.544
Interests	83.902	75.512	67.122	58.732	50.341	41.951	33.561	25.171	16.780	8.390
Amortization	241.154	241.154	241.154	241.154	241.154	241.154	241.154	241.154	241.154	241.154
Capital in debt (end)	2.170.386	1.929.232	1.688.078	1.446.924	1.205.770	964.616	723.462	482.308	241.154	0
Interests tax shield	17.619	15.858	14.096	12.334	10.572	8.810	7.048	5.286	3.524	1.762
Outflow	307.437	300.809	294.180	287.552	280.924	274.295	267.667	261.039	254.411	247.782
Loan Cash Flows	-307.437	-300.809	-294.180	-287.552	-280.924	-274.295	-267.667	-261.039	-254.411	-247.782

Table 21 – Sensibility Analysis

Sensibility Analysis			NPV (Ru)	APV (Loan)	APV(Loan + Subsidy)		
			-2.238.363	-1.753.689	2.999.437		
Variables	Base Value	Test Value	Value	Value	Variation	Value	Variation
					€		€
Initial Investment	12.402.208	-10%	-1.377.287	-941.080	812.609	3.336.733	337.296
		+10%	-3.099.439	-2.566.297	-812.609	2.662.141	-337.296
Occupation Rate after the 4th year	95%	+5%	-1.903.536	-1.418.861	334.828	3.334.265	334.828
		-5%	-2.573.191	-2.088.517	-334.828	2.664.609	-334.828
Market Return (Portugal)	5,69%	-2%	-732.483	-247.809	1.505.880	4.505.318	1.505.880
		+2%	-3.426.685	-2.942.010	-1.188.321	1.811.116	-1.188.321
12 months Euribor	0,279%	-1%	N.A.	-1.675.162	78.527	3.060.987	61.550
		+1%	N.A.	-1.840.912	-87.223	2.933.343	-66.094
Financing structure (D/E)	300%	+50%	N.A.	-1.735.738	17.951	3.021.415	21.978
		-50%	N.A.	-1.776.769	-23.080	2.971.180	-28.257
Subsidy Portion	40%	50%	N.A.	-1.753.689	N.A.	4.160.539	1.161.101
		30%	N.A.	-1.753.689	N.A.	1.838.336	-1.161.101