A Work Project presented as part of the requirements for the Award of an International Masters Degree in Finance and an International Masters Degree in Management from the NOVA School of Business and Economics.

Innovation in the Banking Industry:
Creating Value for the New Wave of Seniors

- Innovation & Entrepreneurship Field Lab -

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Abstract

Powerful forces are driving an ongoing transformation of the banking industry. Technological and digital disruption, new regulation and adverse economic conditions are making it increasingly difficult for traditional players to maintain their position in the market. These challenges can be overcome with a customer-centric approach, using innovation to tailor the product offering to customers' evolving needs at different stages in life. The demographic population ageing is making new seniors a critical customer segment to address. The aim of this Work Project is to come up with a concept that brings value to the new wave of seniors.

Keywords: Innovation, Entrepreneurship, Banking, New Seniors

Innovation and Entrepreneurship Field Lab

This thesis represents the work carried out in the Innovation and Entrepreneurship Field Lab at Nova SBE in the spring semester of the academic year 2017/2018.

Living Innovation Lab: In the Living Innovation Lab, Nova SBE works together with one of the largest players in the Portuguese banking sector to promote innovation within their organization. By setting up a team composed of executives from the bank and students from Nova SBE, the Living Innovation Lab brings together people with a different mindset, cultural background and work approach. This represents a unique arena for co-creating something innovative in a controlled environment. Due to confidentiality reasons, the company wants to remain anonymous and will from here on be called "Bank X". The identity of the participating executives is also kept anonymous, and hereafter called Mr. Y and Mr. Z.

Project: The project was carried out from the 5th of February to the 10th of May in the Nova SBE Venture Lab and at Bank X's offices. The team was made up of three members – Mathilde, Jorge and Mr. Y – who worked together to come up with and validate a new concept to propose to Bank X for future implementation. More precisely, the team had to analyze the bank's current situation, detect a viable business opportunity to exploit, design a prototype and search for a working business model. Each semester the Living Innovation Lab has an overarching theme for the projects, and the theme for this project was "new seniors". The team worked alongside the other Living Innovation Lab team, which was made up of 4 students and Mr. Z. While the two teams were to come up with two separate concept, they collaborated in the first phase of the project and provided useful feedback to each other during the rest of the project.

Roles: While the whole thesis was developed jointly by both group members, Mathilde and Jorge, each member was designated a specialist role for one part of the thesis. Jorge was the designated specialist in the Front-End Innovation and Mathilde in the Back-End Innovation.

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1. General Overview

1.1 Introduction and Challenge

Banks play a central role in society. In essence, banks are intermediaries that receive, lend, exchange and safeguard money, thereby contributing to economic development, financial security and trade. In fact, the existence of bank-like institutions can be traced back to ancient Mesopotamia, where people deposited valuable items in sacred temples considered to be safe (Davies 2010). Nowadays, banks have evolved to sophisticated entities offering a wide range of products and services to meet the growing expectations of their customers. Globalization and technology have been important drivers for change in the last century, and are expected to continue shaping the banking environment in the future at an ever-increasing pace.

The current situation faced by European banks can be characterized as challenging. The poor level of profitability represents an overriding issue in the industry and clearly reflects several of the challenges banks are facing. One of these challenges originates from the monetary policy carried out by the European Central Bank (ECB) in the last years. To stimulate economic growth, the ECB significantly decreased the deposit facility rate[1]. This is something that severely compresses banks' spreads[2] and directly affects their profitability in a negative way. Consequently, this led Portuguese banks to significantly increase their fees in the last years, something that has frustrated many customers (Observador 2017a). The massive growth of financial technology companies (FinTechs) in the recent years has further intensified the competitive landscape. FinTechs challenge traditional banks by taking in use the latest technology to offer new digital products and services. Besides introducing new products and services that better address certain customer needs and desires, many FinTechs also challenge traditional banks by charging low prices. Furthermore, the Revised Payment Service Directive

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[1] **Deposit Facility Rate:** The rate banks receive on overnight deposits in the ECB
[2] **Spread:** Difference between the interest rate charged to borrowers and the interest rate paid to depositors

(PSD2) is currently being introduced across Europe, adding to the already rigorous regulation placed on banks (Evry 2017). With PSD2, banks will be forced to grant third party providers (TPP) access to their customers' accounts via an open application program interface (API). They will thereby lose their exclusive rights to their customers' account information and payment services. While this may potentially further weaken incumbent banks position vis-à-vis FinTechs and other non-bank players, PSD2 also present opportunities for banks if they are willing to cooperate with the TPPs.

Bank X belongs to one of the largest European banks and is a key player in the Portuguese retail banking sector. Bank X has been able to steadily grow their presence in the Portuguese market in the last years, and is recognized as one of the highest performing banks. Bank X has both the resources and capabilities needed to thrive in the future. However, faced with the challenges of today's harsh banking-environment, Bank X's current revenue model may be put under scrutiny in the near future if they do not take action and adapt.

The current environment has changed the way financial institutions are approaching the market and their customers, shifting the focus from a product-centric strategy to one that places its customers at the heart of the business. To succeed with this strategy, banks need to be aware of the needs of their customers, and how these change in different stages of their life.

An ageing population is becoming a reality across the globe. Demographic predictions suggest that Portugal will be one of the countries in Europe most affected by the demographic shift (European Commision 2015). By 2060, it is estimated that there will only be 1.6 workers per pensioner in Portugal. An implication of this is that new seniors[3] will represent an increasingly important customer segment for businesses across most industries. Addressing new seniors represents a viable opportunity that Bank X should exploit. Therefore, the Work Project answers the following question: *"How can Bank X create value for the wave of new seniors?"*

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[3] **New Seniors:** Individuals who are about to retire or recently retired

1.2 Aims and Objectives

The aim of this Work Project is to create and validate a new concept for Bank X, taking into account the challenges they are facing today and focusing on new seniors. To achieve this, three main objectives were created: **(1)** Identify key challenges and opportunities that Bank X can act on, **(2)** create and validate a new concept in line with the challenges and opportunities identified, and the overarching challenge of the Work Project, **(3)** provide recommendations to Bank X on how they can develop and implement the concept in an action plan, as well as the anticipated impact of implementing the proposed solution.

1.3 Work Methodology

The work done to achieve the proposed aim of the work project can be divided in three parts: **(1)** a **diagnosis** of Bank X's current situation, **(2)** an **analysis** part comprising the front and back-end of the innovation process (chapters 3 and 4) and **(3) recommendations** to Bank X. The Work Project started with the **diagnosis** of Bank X, where the objective was to understand the current situation. To achieve this, external and internal factors affecting the bank were analyzed by performing desk research. The analysis of the external factors covered the overall business environment, current trends affecting the industry and an industry player analysis. To analyze the overall business environment and trends, the PESTEL-framework was utilized. PESTEL is an acronym for Political, Economic, Social, Technological, Environmental and Legal, and is a framework used to understand the macro-environmental factors affecting a company. Based on this analysis, the team identified six key factors considered to be highly relevant for this Work Project. In the industry player analysis, the team conducted a comparison of the key retail banks in the Portuguese market based on important characteristics, as well as an evaluation of the FinTechs directly competing with Bank X in Portugal. In the analysis of internal factors, Bank X as an organization and their current business model was considered.

The **analysis** part of the Work Project was done in two distinct phases: the front-end of innovation and the back-end of innovation. During the whole process, the team based their work on the Lean Startup methodology and the Customer Development model. A large part of the innovation process revolved around getting a deeper understanding of the customers, as well as gathering insights and ideas. Exploratory research was chosen as the best option, and the main focus was on conducting in-depth interviews with a relatively small sample size rather than trying to collect statistically accurate information.

In the **front-end of innovation** the goal was to reach a Problem/Solution fit[4]. The team based their work on the Value Proposition Design methodology and the Value Creation Wheel methodology. This part started off with an exploratory phase. The first step was to gather and structure information from the diagnosis part, and other insights about the target group obtained from desk research, and create hypotheses based on this. After this, interviews with new seniors and experts were conducted. A total of 10 new seniors between 60 and 75 years old were interviewed, where special attention was given to collect insights from people with a diverse economic situation, professional field and family household type. Additionally, insights were gathered from interviews with 9 experts with the following professions: Psychologist, Doctor, Pharmacist, Lawyer, Travel Agent and Bank Branch Manager. With this knowledge in hand, the team entered the sprint week, which consisted of five intense days of ideation following the Value Creation Wheel methodology. In the beginning of this week the team defined the problem needed to be solved. 19 interviews with the potential target and other stakeholders were conducted to help with the idea generation process, as well as to help to create filters[5] to them. Towards the end of the week, two key decision makers from Bank X gave feedback on the ideas

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[4] **Problem/Solution fit:** Occurs when you have proven the existence of a problem and designed a value proposition that addresses it (Osterwalder et al. 2014)
[5] **Filter:** Acceptance or rejection criterias for a solution

and filters generated. In the end of the week, the team had reached a conceptualized idea that satisfied the problem/solution fit criteria.

In the second phase of the analysis part, the **back-end of innovation**, the work with the conceptualized idea continued. In this phase, the team worked towards achieving a Product/Market fit[6], where the main focus was on the front-office business model[7]. The Business Model Canvas was used to state the initial assumptions regarding the proposed solution. This served as a starting-point for validating the concept. The validation was done over the course of four validation cycles, where the most risky assumptions were tested first. The team used a Validation Board as a tool to track the results obtained in the different cycles. In each cycle the team stated hypotheses that were going to be tested, the experiments to be carried out in order to test these hypotheses and criteria to accept the hypotheses. The experiments consisted of interviews with the customer segments, options testing, driving traffic to a landing page through Facebook advertising and call-to-action tests. This was supplemented with desk research. A total of 56 people were interviewed, 19 seniors and 37 students. The Facebook advertisement was run in two campaigns reaching 5014 persons in the first campaign and 4500 in the second campaign. 200 leaflets were distributed in various locations.

In the last part of the thesis, the **challenge of the work project is answered** and **recommendations** to Bank X are provided. The work in this phase was based on desk research and insights from Bank X executives. An action plan was developed to provide Bank X with a roadmap to how they can implement the solution in a given time frame, and the associated resources necessary. This part also includes the possible impact of implementing the solution, market size and key performance indicators.

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[6] **Product/Market Fit:** Occurs when you have evidence that the value proposition creates value for the customer segment by alleviating their pains or creating a desired gains (Osterwalder et al. 2014)
[7] **Front-Office Business Model:** Part of Business Model concerned with value creation and customers

2. Diagnosis

To get a better understanding of Bank X's current situation before entering the ideation phase of the project, an internal and external analysis of the bank was conducted.

2.1 External Analysis

To get a better idea of Bank X's playing field, the team analyzed the most powerful forces impacting the retail banking industry, as well as the key industry players.

2.1.1 Context and Trends

Following an analysis of the external business environment of Bank X, six factors with high relevance for the Work Project were identified: profitability of traditional banks, fragility of the banks, regulation, digitalization, the ageing population and loneliness & social isolation.

Key Factor #1: Profitability in Traditional Banking

In order to encourage economic growth in the Eurozone, the European Central Bank has followed an expansionary monetary policy since the end of the crisis. This has led them to significantly lower the interest rate (European Central Bank 2017). When the interest rate is low, the difference between what banks can charge their borrowers and their cost of funding is small, which reduces the net interest income (NII). Since the NII represents the largest portion of retail banks' revenues, the low interest rate environment has led to a significant fall in banks' margins (McKinsey&Company 2016a). In an attempt to compensate for this, banks across Europe have increased their fees. However, the portion of non-interest income in these banks still remain low compared to North-American banks (Claessens, Coleman, and Donelly 2017). The decrease in profitability has been reflected in the falling market valuations of banks throughout Europe. The decline of Portuguese banks' market valuation has, however, been considerably larger, due to them being perceived as more risky in the market (OECD 2017). While interest rates in the US and the UK are expected to increase, the European rate is expected

to remain unchanged or low in the short-term (PWC 2017). Profitability is therefore likely to remain a main challenge.

Key Factor #2: Fragility of Banks

Banks are, by nature, sensitive to macro-economic factors. The financial sector and the overall economy are interrelated, and the performance of banks are therefore highly dependent on the overall state of the economy. The strong interconnectedness between banks and other financial institutions further increases their vulnerability to changes in the economy and to financial crises (Scott 2012). This also plays an important role for the level of trust consumers have to their bank. Research suggests that Portuguese consumers' level of trust significantly decreased during and after the European debt crisis (Batalha 2014). The trust issue is considered to be strongly related to financial crises, and to the collapse of major banks, such as the collapse of Banco Espirito Santo in 2014. Although projections for the Portuguese and European economy in the next few years are promising, there is always some degree of uncertainty around the future market conditions and the possibility of a new crisis. Bank X should consider ways to further reduce their exposure to potential negative externalities of the industry and other banks.

Key Factor #3: Regulation

To ensure financial stability, consumer protection and fair competition, banks are subject to strict regulation. The EU has adapted the Basel agreements in its legal framework, and the third Basel accord is currently being implemented by the European Banking Authority (2018). Due to this, the regulatory burden placed on banks have increased in the last years, including stricter requirements on capital and liquidity, as well as increased supervision from regulatory authorities (European Banking Authority 2015; Cohen 2013). Meanwhile, the shadow banking[8] sector has grown significantly in the last years, and the emergence of FinTechs has been especially apparent (Bloomberg 2017). A widely accepted explanation for this is the regulatory

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[8] **Shadow Banks:** Non-banks providing similar services as banks, but not subject to the same regulatory oversight

arbitrage shadow banks have vis-à-vis traditional banks. The increased regulatory burden has limited the types of products traditional retail banks can offer and affects the banks' cost of funding, making them withdraw from certain markets with high regulatory costs (Buchak et al. 2017). As shadow banks are not facing the same regulatory difficulties, they have been able to step in to some of these gaps, rapidly gaining significant shares in the market.

The Revised Payment Service Directive (PSD2) is currently being implemented in Europe, and is expected to significantly change the banking landscape (Evry 2017). The PSD2 is technology-driven and aims at increasing innovation, transparency and competition in the European payment market (Accenture 2016). The directive will enable bank customers to use third party providers (TPPs) to manage their finances, and these TPPs will be granted access to clients' account through an API (application program interface). This will have several implications for banks. The loss of exclusive access to customer data will eliminate an important competitive advantage for banks, and banks' IT costs will likely increase because of security requirements related with opening APIs. The directive will bring in new players to the market, making it harder for banks to differentiate when these start interacting with customers. However, the PSD2 can also create potential opportunities for traditional retail banks like Bank X, including partnerships with TPPs, monetization of APIs and advisory services.

Key Factor #4: Digitalization

The digital revolution is expected to continue revolutionize consumers' behavior and the way they engage with companies (Deloitte 2017). Digitization has brought new and improved products and services to customers across business segments. This has resulted in rapidly evolving expectations in the banking sector (Greenwich Associates 2016). Digitization is expected to continue having a large impact on banks, and it is expected to do it in two ways (McKinsey&Company 2016a). First, digitization is expected to drive cost reductions, for instance through increased automation of processes or use of analytics in risk management.

Second, digitization will lead to improved customer offerings and services. Artificial Intelligence (AI) is expecting to play a significant role in this, as it is now becoming sufficiently advanced and affordable to be implemented in financial services (McKinsey&Company 2017). Blockchain is another technology currently setting its marks on the financial industry. With its distributed ledger technology, it has the potential to enable banks to reduce their transaction costs and process payments more quickly (Accenture 2018). While digitization may present commensurate opportunities for banks, there are also several risks. Studies of Portuguese consumers have shown that they have a low acceptance of e-commerce and a high aversion of sharing personal information on the internet compared to other European countries (Marketeer 2016). A key challenge is therefore to balance these two opposing forces, by focusing on digital solutions for the consumers in order to stay competitive, while also acknowledging the possible limitations. Digitization will also continue to fuel the rise of FinTechs and other non-traditional players. These players will bring in disruptive technology to the retail banking sector and be a driving force for banks to reinvent themselves in order to survive (Williams-Grut 2017).

Key Factor #5: The Ageing Population

Low birth rates and increased life expectancy has made an ageing population a reality in Portugal and the rest of Europe (SilverSUDEO 2014). The demographic shift is expected to have significant implications on the society and the economy. By 2060, the old-age dependency ratio[9] in Europe is projected to be around 50.1 percent, compared to 27.8 percent in 2013 (European Commision 2015). In Portugal, the old-age dependency ratio is expected to be significantly higher, 63.9%, making it one of the countries in Europe anticipated to be the most affected by the demographic shift.

Countries are now facing the challenge of preparing their health and social systems to the demographic shift. However, businesses must also acknowledge the significant implications

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[9] **Old-age Dependency Ratio** Population aged 65+ relative to the population in working age (aged 15-64)

this will have. Since seniors will make up a large portion of the population, it will represent an increasingly more important customer segment across all sectors. Specifically, in the banking sector, the impact the demographic shift will have on pensions, savings and consumption will play a key role. In developed countries, the group of the population over the age of 60 tends to have a low level of debt and a high disposable income (SilverSUDEO 2014). However, the spending power tends to diminish when they reach a higher age, somewhere around 75 years. This is also around the time they start to lose their autonomy. These are important factors retail banks must account for in their strategy.

According to a report on the Silver Economy of Southwest Europe, the market for Silver Economy[10] in Europe is around €420 billion (SilverSUDEO 2014). The potential for innovation in this market is considered to be high (Bruegel 2017). Opportunities arise from addressing the specific needs and lifestyle of potential customers, such as products offering mobility services to improve the well-being of seniors or services enabling interaction with other people.

Key Factor #6: Loneliness & Social Isolation

Despite being more connected than ever, studies have shown that people are feeling more alone than ever before (Huffington Post 2017). Whereas loneliness is considered an emotional and subjective state of mind, social isolation is an objective state where a person lacks social contact with others (McMaster Univeristy 2016). Although being two different concepts, social isolation and loneliness are often closely linked, and both are considered significant health risks. One study concluded that a lack of social relationships is a risk factor for mortality as strong as obesity, smoking and having a sedentary lifestyle. The problem of loneliness and social isolations is especially prevalent among older adults. Possible reasons includes retirement, mobility issues and loss of significant relationships due to death.

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[10] **The Silver Economy** includes all economic activity relevant to the needs of older adults (aged 65 and over)

Suggested solutions to reduce loneliness and social isolation are commonly interventions to be carried out by the social sector. However, businesses should also address this issue and need to be responsive to the needs of their customers if they want to stay in the market.

2.1.2 Player Analysis

To get a full understanding of Bank X's external environment, it is important to analyze the competitive environment in which it operates. As its main competitors, we can highlight both traditional retail banks from Portugal and FinTechs.

2.1.2.1 Retail Banks

Despite the abundance of retail banks in Portugal, there are five that clearly dominate the market (see Appendix 1). The major players are Caixa Geral de Depósitos, Banco Santander Totta, Banco Comercial Português, Novo Banco and Banco Português de Investimento, having almost 90% of the total assets in the Portuguese banking industry (Relbanks 2018).

Caixa Geral de Depósitos (CGD) is the state-owned and the biggest operating bank in Portugal. The bank was recently restructured due to some financial problems. However, this bank still has great reputation and distribution in terms of branches in Portugal (Observador 2017b).

Banco Santander Totta (BST) is the biggest private institution in Portugal in terms of activities and credit given. It is also one of the country's most resilient financial institutions with a large customer base and an enormous network of branches throughout Portugal. BST is the Portuguese bank with the best financial situation in the last years, having acquired smaller banks in difficult situations, such as Banif or Popular (ECO News 2017).

Banco Comercial Português (BCP) is the second largest Portuguese bank in terms of market share. They were surpassed by BST when it acquired Banco Popular last year. It is an institution focused on attracting young customers having specific offers costumed for this segment such as ActivoBank or M Contacto.

Novo Banco (NB) was established in August 2014 to rescue assets from the failed Banco Espirito Santo (BES) that closed due to financial distress. BES used to be one of the most prestigious financial institutions in Portugal. Despite facing some reputational problems, NB is working hard to improve their offering by heavily investing in innovation. The team considers NB as the bank most committed to innovation among the major players (see Appendix 2).

Banco Português de Investimento(BPI) was founded in 1985 and is the fifth biggest financial institution in Portugal. It has more than 1.4 million customers and is primarily active in Portugal, Spain, Angola and Mozambique.

A comparison of the banks was carried out and the results are shown in Table 1.

Table 1: Comparison of the most important characteristics of Portuguese retail banks

Attributes	CGD	BST	BCP	NB	BPI
Reputation	●	●	◕	◔	◕
Distribution (#Branches)	●	◕	◕	◑	◑
Security	●	●	◕	◑	◕
Customer Service	◕	●	●	◑	◑
New Senior Presence	●	◕	◕	◑	◕
Digital Presence	◑	◕	◑	●	◑

Source: Desk research, insights from Bank X and team own analysis

Legend:

Worst	1	2	3	4	5	Best
	○	◔	◑	◕	●	

2.1.2.2 Fintechs

FinTechs are disruptive technology driven companies focused on financial products and services (McKinsey&Company 2016b). The digital revolution, together with a favorable regulatory playing field have paved the way for FinTechs in the last years, and there is little doubt that they will continue to grow in the near future. FinTechs are playing an active role in enhancing the digital experience and innovation in the financial sector. FinTechs offering products and services that can substitute the current offering of traditional retail banks pose a direct threat. The most important ones are shown in Table 2.

Table 2: Most threatening FinTechs for Bank X

Name	Description	Additional Information
Monzo	Digital, mobile-only bank with headquarters in the UK. Offers prepaid debit card with no fees and an online banking account	More than 500,000 customers. Offers a mobile app that gives users an overview of their spending habits
N26	N26 is headquartered in Berlin and allows its customers to open a bank account in just 8 minutes online. They do not charge any maintenance fees and ensure safety of deposits up to €100,000	Opening of account includes a Master Card. It is one of most promising FinTechs with more than 200,000 clients and receiving already € 20 million in investment rounds.
Revolut	Digital banking alternative that includes a pre-paid debit card (Mastercard or Visa), currency exchange, cryptocurrency exchange and peer-to-peer payments.	Does not charge foreign exchange fees and offers the real exchange rate, making it an attractive product for travelers and/or expats. Current valuation is €1.42 billion

Source: Team own analysis; Independent 2018; Revolut 2018; Dinheiro Vivo 2016

2.2 Internal Analysis

An internal analysis was carried out to assess Bank X's capabilities and resources.

2.2.1 Organization

Bank X is owned by one of the biggest and most prestigious worldwide financial institutions. Currently, it is one of the high performing banks in Portugal, with a strong ability to generate revenues, stable capital ratios and maintaining a good liquidity position. Because of this performance, Bank X has been profitable every year, inclusively during the recent economic and financial crisis in Portugal that deeply affected the banking industry.

Bank X is steadily increasing its market share and influence in Portugal. This growth has been mainly inorganic, through the acquisition of smaller banking institutions struggling financially in the last few years.

In the last few years, Bank X has had a strong focus on simplifying their procedures and developing their digital platforms to improve service quality and increase efficiency. Some of the measures they have taken include making wi-fi available in all branches, enabling account opening from tablet devices and allowing clients to apply for credit cards online. As a result, they have been able to increase the number of loyal and digital clients.

Despite efforts like these, innovation at Bank X is still more incremental (upgrade in services/performance) than disruptive (innovations having significant impact on the market).

According to Bank X employees, this is due to Bank X's size, complexity and very hierarchical structure, making it an environment that is not optimal for innovation. Nevertheless, Bank X's top management has been trying to promote innovation by working closely with the entrepreneurial and university environment. This Work Project represents one example of this.

2.2.2 Current Business Model

From a broader point of view, a bank is an institution focused on handling customer deposits and making loans (Fintech Profile 2016). Like most other retail banks, Bank X generates most of their profits from their NII (Saunders and Cornett 2013). Besides this, income is generated by charging fees for services and by trading financial instruments.

The increasingly competitive banking environment has forced Bank X to change the way it approaches the market. In the past, Bank X successfully applied a traditional business model based on monopolization – product-centric. This means that it offered a fixed variety of products/services for every customer, thereby not customizing for individual needs. However, because of the digitalization phenomena, disruptive new entrants have appeared in every industry, including the banking sector, putting this model under scrutiny (Deloitte 2016).

Considering that these new entrants are niche product companies focused on delivering additional value by personalizing offers to customers, Bank X had to shift their focus to be more customer-centric in order to compete (BBVA 2015).

To adopt a customer-centric approach, Bank X needs to offer products and services that solve the specific problems encountered by its different customers. This implies having a holistic view of each customer's evolving needs at different stages in life. Because of the phenomena of an ageing population, new seniors will represent an important segment to address.

2.3 Conclusion of Situational Analysis

Bank X is currently operating in a challenging environment. The low profitability in the sector, together with the increased regulatory burden, has made it increasingly difficult for banks to

remain successful with their already existing strategies. In addition, FinTechs are gaining traction in the market by making use of technology to offer customers products that better satisfy their needs, something that further weakens traditional banks' competitive situation.

Despite the challenging situation they are facing, Bank X has been performing well in the last years, something clearly reflecting the organisations' powerful capabilities. However, the size and complexity of Bank X makes it a rigid organisation, challenging their ability to keep up with the current speed of change.

To overcome the challenging situation it is currently facing, Bank X needs to make innovation a priority in the organization. In this way, they will be able to better meet the evolving needs of their customers and maintain their competitive position in the market.

3. Front-end of innovation: Problem/Solution fit

3.1 Front-End of Innovation Context

Innovation is the process of transforming ideas into new or improved products, services or processes, to create value for an organization (Baregheh, Rowley, and Sambrook 2009). This process can be divided into two parts: Front-End and Back-End.

The Front-End of Innovation is the "ideation part" of the innovation life cycle, where opportunities for innovation are identified and analyzed prior to entering the formal product development process. By being at an early stage of the innovation process, it is a vague, creative and flexible phase. Therefore, high quality of work should be ensured to guarantee the success of all the innovation process and that all opportunities are explored (Lead Innovation 2018). The Front- End Innovation phase results are vital to determine whether to invest more resources in further development of innovation or not. An overarching goal of this phase was to reach a Problem/Solution fit, by finding a problem worth solving and design a viable solution for that problem.

3.2 Theoretical Background

The following methodologies & tools were applied in the Front-End innovation process: Lean Startup, Value Proposition Canvas, and Value Creation Wheel.

3.2.1 Lean Startup Methodology

The Work Project has been based on principles from the Lean Startup, developed by Eric Ries. This methodology was created by applying ideas from the lean manufacturing concept to the process of innovation and it is characterized by having a strong focus on product and development processes to be both relevant and effective (Ries 2011). In this way it does not only help companies to prioritize correctly, but it also helps them to avoid excessive use of resources by preventing to move forward with unnecessary developments.

Despite the name, this methodology is also highly applicable to bigger companies, providing them with a structure to develop innovative businesses and products in uncertain conditions. The five key principles of Lean Startup are explained in Table 3.

Table 3: The Lean Startup Methodology's five key principles

Stage	Tasks
"Entrepreneurs are Everywhere"	According to Ries, being an entrepreneur is about creating something new under conditions of extreme uncertainty. Any institution fitting this description, being a startup ran from a garage or a large enterprise, can be considered an entrepreneur.
"Entrepreneurship is Management"	It is important to have a type of management geared to the context of extreme uncertainty
"Validate Learning"	Because startups and companies are faced with extreme uncertainty, it is valuable for them to discover truths concerning their present or future business prospects, and validated learning is therefore considered a main unit of progress.
"Build-Measure-Learn"	The Build-Measure-Learn Feedback Loop, shown in Appendix 3, is a framework to develop and continuously improve the effectiveness of new products through validated learning. It proposes to build a Minimum Viable Product (MVP)[11] and test out assumptions in hypothesis-driven experiments, where the effectiveness is measured from feedback received from customers. Based on what was learned in the experiment, the product can either be persevered or pivoted if changes are required. The MVP evolves as the process is repeated in cycles. This can help companies quickly learn what the customers really want and thereby shorten product development cycles.
"Innovation Accounting"	Recognizes the importance of measuring the progress achieved throughout the innovation process.

Source: Ries 2011

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[11] **MVP:** Minimum set of features to satisfy customer needs

3.2.2 Value Proposition Canvas

The Value Proposition Canvas (VPC), developed by Alexander Osterwalder in 2014, was used as a framework throughout the innovation process. The VPC has two sides: the customer profile to clarify customer understanding, and the value map to describe how you intend to create value for that customer (Osterwalder et al. 2014). The VPC is displayed in Appendix 4.

The customer profile describes a specific customer segment of a business model in a structured and detailed way. It has three main elements: **1) Jobs** – what customers are trying to get, **2) Pains** – what annoys customers and **3) Gains** – what benefits the customer wants. In order to know the customers' priority, the jobs, pains and gains should be ranked according to their importance to the customers. The value map describes the features of a specific value proposition in the business model in a structured way, and it is divided into three areas: **1) List of product and services** the value proposition was built around, **2) Pain Relievers** – how products and services alleviate customer pains and **3) Gain Creators** - how your products and services may create customer gains. To achieve fit, the value map needs to be aligned with the customer profile. This means that the products and services provide pain relievers and gain creators that match the high priority jobs, pains, and gains of the customers at stake.

3.2.3 Value Creation Wheel

The Value Creation Wheel (VCW), a framework created by Luis Filipe Lages, aims to help identify, analyze, and solve problems by providing a step-by-step dynamic process for creating value for society and all stakeholders involved in the value-chain (Lages 2016).

The goal of VCW is to facilitate decision-making when dealing with any situation by having a clear structure to help select the best solution to a specific problem. To do that effectively, it is a highly interactive, circular meta-framework, with the flexibility to deal with constant changes in the environment. Being a meta-framework, the structure is open and flexible to incorporate other concrete frameworks and components that will allow an optimal outcome.

VCW can be used for a wide variety of problems, everything from searching for a lost airplane in the ocean to addressing problems in areas like astronomy, chemistry or energy (Lages 2016). The VCW has two major components: DIANA and TIAGO. DIANA framework provides a holistic approach to problem-solving, which is supported by managerial and technological advancements. TIAGO is a highly flexible and dynamic tool to develop a customized solution for specific problems, supporting the implementation of DIANA framework (Lages 2016).

Figure 1: The Value Creation Wheel –DIANA and TIAGO
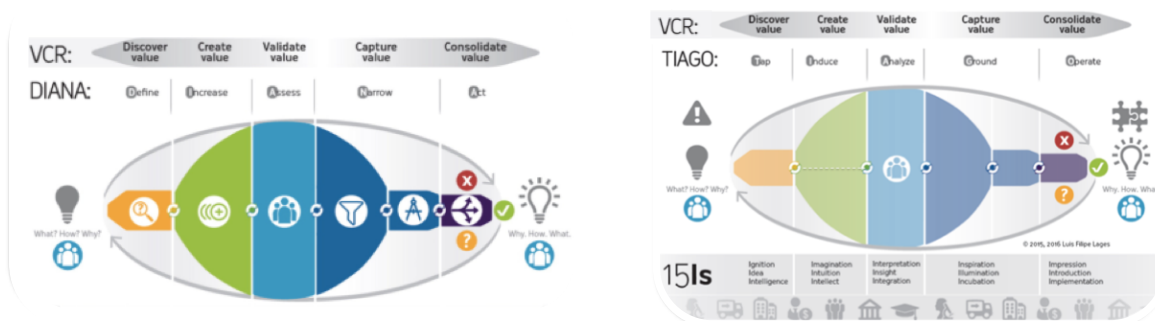
Source: Lages 2016

As it can be seen in Figure 1 above, VCW is divided in 5 different stages: discover, create, validate, capture and consolidate value. These stages are explained in Table 4.

Table 4: The Five Stages of the VCW

Stage	Tasks
Discover Value	This stage is focused on gaining knowledge about the topic at hand. Firstly, the context should be analyzed and the problem to be solved defined. To better understand the problem and the characteristics of potential customers facing it, it can be useful to design a "Persona"– an individual with personality and physical attributes matching the problem to be solved, and a "Customer Journey Map" – the customer's experience over time.
Create Value	Achieve as many ideas for solution and filters as possible using various stakeholders. Idea generation should be supported by multiple approaches, such as brainstorming, brain-writing, networking, etc. Filters are also collected at this stage. They will be the acceptance/rejection criteria, the reasons why a solution might or might not be suitable for future implementation.
Validate Value	Key decision makers should be invited to rank the potential of each solution and filters coming from the previous phase. These key decision makers should be persons with the power to implement the final solution. The "Poker Method" is used consisting in informing, validating, refining, multiplying, and /or eliminating existing solutions and filters. Key decision makers should then select and rank the filters from the most to the least important.
Capture Value	The Value Creation Funnel (VCF) is built. VCF results from applying the ranked filters to the solutions coming from the previous phase. In this phase there are three exercises: the crazy 8s – finding 8 variations for a specific solution in 8 minutes (1 per minute), design a three-panel story for a specific solution and the Heatmap – identify points of interest on solution sketches. At the end of this phase, the team should select the best idea to continue with, and create a storyboard and prototype of the solution.
Consolidate Value	Development and implementation of the solution chosen through a business model, where applicable. The solution should be pitched to a key decision maker, who will make one of the following decision GO, NO GO or CHECK (go back).

Source: Lages 2016

3.3 Analysis: From Problem to Solution

The Front-End of innovation was divided into two stages. The first stage took place in the first weeks of the project and was focused on finding an opportunity ("problem") to exploit based on the research done on new seniors. The second stage was the sprint week, and the focus was on finding a solution that would fit the problem.

3.2.1 Opportunity Analysis

3.2.1.1 Key Insights from Exploratory Research

From the interviews (see Appendix 5), the team identified three recurring topics highlighted by people when talking about retirement: **1) Time** – keep busy to feel good, **2) Accomplishment** – feel good by having impact and learning and **3) Connecting –** feel good by being with others.

TIME: The generation interviewed is characterized by having little free time available throughout their life, dedicating most of it to work and career progression. Therefore, retirement changes the daily routine completely. Besides not having to work daily, their responsibilities as parents diminish as their kids turn into adults, get independent and, in some situations, move out. Because of this, many reported that they felt something was missing in their lives after retirement and were concerned with finding activities to fill their time. Another relevant insight is that they are in a stage of their lives where they just want to use the time for activities they actually enjoy, contrasting with a job life made of sacrifices. Considering health might deteriorate in the future, travelling to an exotic location or going to the museum of their dreams, is no longer a dream for the future, but an objective for the present.

ACCOMPLISHMENT: The generation currently facing retirement tends to have a higher level of education than their parents, reflecting the improvement in education system between them and the previous generation. Many of these people have adapted well to the usage of digital channels, either through work-related purposes or by interacting with younger members of their family, i.e.. kids, grandkids and nephews. Therefore, having benefited from worthy

education in the past, and being adapted to the new trends, these people strongly value continuous learning and skill development at any stage of their lives. Retiring is not an obstacle, but rather an opportunity to new learnings, such as computer coding, a language or dancing.

CONNECTING: Finally, a very significant issue for this generation is the need to relate with others. A key insight from interviews with different service providers, such as a Bank X branch manager, a travel agent and a pharmacist, was that people from this generation are very talkative and open to receive advice without inclusively asking for it. Additionally, many saw these service points as opportunities to connect with someone else in order to get a sense of belonging in society. This effort to connect with people in daily activities indicates that many at this age are feeling lonely and do not have sufficient social relationships. Reasons for the decline in daily interaction with others may be due to retirement, reduced mobility or the loss of a loved one. Retirement is known as a phase were people are more isolated and that was refereed as one of the main concerns in interviews. Besides this, the strong need to connect to others also manifests itself online. People aged 65 and above currently represent the fastest growing demographic on social media (Smart Insigths 2018).

3.2.1.2 Conclusion of Exploratory Research

Considering the results from the exploratory interviews with new seniors and experts, the team concluded that retirement provokes a lot of changes in people's daily lives, which are not always positive. Since people have a lot of availability, while not knowing how to spend their free-time, and with whom, many of the interviewed reported feeling lonely. A common cause of loneliness among retirees is the lack of actual contact with other individuals and the society, also known as social isolation. Considering loneliness often results in strong feelings of sadness and anxiety, the team decided to focus on the issue of **loneliness** provoked by **social isolation**. Common causes of social isolation among retirees may be a lack of social relations, either due to distance or death, lack of technical knowledge, mobility issues and other psychological

reasons. Loneliness is often an overlooked problem in society, despite it having very severe health consequences. In fact, lonely people are 30% more likely to suffer a stroke or heart disease, and have a 50% increased risk of early death, compared to those with good social connections (The Telegraph 2017).

3.2.2 Sprint Week

To find a solution for the isolation problem in the new senior segment, a Sprint Week was conducted based on the stages of the Value Creation Wheel. This was an intensive week with each day corresponding to a stage of the VCW.

<u>**Monday – Discover Value**</u>

Problem/Long-term goal: The initial phase of the Sprint Week was focused on defining the problem and analyzing the context. Based on the insights from the opportunity analysis stage and from the desk research before the Sprint Week (see Appendix 6 and 7), the problem was defined as "How can we use new seniors' availability to create value and reduce social isolation?". The long-term goal was established to be: "Reduce social isolation among new seniors (+65)". The team decided to focus on the isolation issue in this age group since it is around the age of retirement. For many people, retirement represents a significant shift in their life, going from living a busy and social work life to having a lot of free time and a lack of connections to other people. The team concluded that the availability, combined with a desire to feel less lonely, can be used in a way that creates value for society and for new seniors.

Persona: The team created a "Persona" with characteristics matching a typical person facing the problem of social isolation and loneliness after retirement, which is shown in Appendix 8. The persona made was a woman called Maria Alice that just got retired. Despite having direct family – 2 kids and 2 grandkids, she is currently living alone after going through a divorce and her kids moving out. She is a communicative person who likes to talk and to tell stories about her life, and values contact with others a lot. Currently, she is missing the connections she used

to have at work both with her colleagues and customers. In contrast to what she thought before retirement, she is not happy with her situation because she feels lonely. Due to lack of activities and physical movement, her health is deteriorating – gaining weight and back problems. Therefore, she is actively looking forward to find a way to be more occupied/active.

Customer Journey: As the final step of discover value stage, and to better understand our persona's experience over time, the team created a customer journey map, which is shown in Appendix 9. Maria Alices's customer journey map is divided in two opposite and contrasting sides.The left side is related to her life before retirement and the right side after retirement.

On the left side, Maria Alice is still working having an occupied daily-life. At work, Maria Alice is responsible for customer service, where she was active in attending customers all-day. She has a good relation with her colleagues, often having lunch and coffee breaks together. Despite things going good professionally, she is facing a big issue in her personal life, the divorce with her long-standing husband. To find joy in her life, Maria Alice started attending dancing classes a few times per week, where she met some new people. By connecting with people from work and dance classes, she was over time able to get over the divorce.

On the right-side of the customer-journey map, Maria Alice is facing retirement. She finds herself in a situation where she feels bored and lonely. She spends her mornings reading the newspaper, checking Facebook and buying groceries for the day. She tries to fill her afternoons with activities, such as going to the hair salon, being with her grandkids, or cleaning. Despite sometimes sharing a meal with a long-time friend, she usually has dinner by herself.

We can conclude that there is a clear contrast between life before and after retirement. Firstly, from having no time to having a lot of time available. Secondly, from being outside a lot to being home alone more often. And finally, from being active to more stuck. Considering the disparities of this situation, our objective is to make the transition to retirement smoother, creating a way for people like Maria Alice to still feel useful and active after retirement.

<u>Tuesday – Create Value</u>

After the discover value phase the team moved to the value creation phase. Ideas and filters were collected through brain-writing, brainstorming within the team and by having conversations with stakeholders. Stakeholders acknowledged the importance of solving the problem of social isolation, providing the team with creative solutions and filters.

Ideas: Overall, the team ended up with 19 different solutions. These were divided into four categories: "Co-Living", "Connect People", "Keep Working" and "New Banking Features".

Co-Living: Retirees' living situation tends to change over the years. Events like divorce, death of a near one or adult children moving out may lead them to a situation where they live alone. Solutions promoting co-living may alleviate the problem by bringing people to live together.

Connect People: As it was concluded in the exploratory phase, one of the main priorities for senior people is to connect with others. Therefore, by finding different ways to use their time, skills or willingness to learn more, seniors may be able to feel more integrated in society. *Keep Working:* Seniors may use their knowledge and skills to fullfil the need for accomplishment, continuing to be active after retirement. *New Banking Features:* Banking features aimed at alleviating the problem in different ways, such as allowing new seniors to better connect with friends and family, as well as addressing mobility issues that may lead to isolation. The 19 ideas, and the descriptions of each, are shown in Appendix 10.

Filters: The filter collection is determinant since they play an essential role in the process of reaching the final solution. In total 19 filters were collected and divided into three different categories: product, market and customer-related. *Product:* Specific characteristics that the product has and how they will be determinant in its success or failure. *Market:* Related with market-product fit, meaning the degree in which a product satisfies a strong market demand. *Customer:* Related with customers and how they will accept the product. The 19 filters, and the description of each, are shown in Appendix 11.

Wednesday – Validate Value

Poker Method: Two Key Decision Makers (KDM) from Bank X were called to provide the team with feedback on the solutions and filters using the "Poker Method". This implied sorting the solutions and filters into four different categories: **1) Keep** – Solutions/filters that are good and require no modifications, **2) Kill** – Solutions/filters that should be eliminated, **3) Review** – Solutions and filters that should be modified and **4) Multiply** – Solutions/filters that should be further explored. Additionally, the KDM ranked the filters depending on their importance.

Solutions: At the end of the exercise 4 solutions were selected as the most promising: Generation Link, "Near Me" Zomato, +65 Portfolio Network and You Become a Bank.

Filters: Some filters were selected as crucial to choose the best ideas for Bank X (see Appendix 12). The ones considered most important were: brand awareness potential – potential to improve reputation and reach of Bank X, budget– financial resources needed to implement the product, and network-effect – does it have more value with more people using it.

Thursday – Capture Value

Value Creation Funnel: In this phase, the team did several exercises that enabled to select the final solution, such as the "crazy 8s", making a three panel sketch of each team member's preferred idea, making an "art museum" to showcase the best ideas and a "heatmap" to highlight the most interesting features in each solution. In the end, the team selected the following solution: *Generation Link* – a platform allowing seniors to rent out available rooms in their homes to university students. The main reason behind this decision was that the team considered it to be the solution that most effectively solved the problem of social isolation and loneliness among new seniors.

Three-panel sketch & Heatmap: The three-panel sketch for Generation Link is shown in Appendix 13. In the first panel, the student is complaining about the price of rooms in Lisbon. Meanwhile, the senior is bored of being alone at home. In the second panel, the senior is creating

an ad of an available room in her house. In the third panel, a student is checking the ad and showing interest in it by sending a request to the landlord. Afterwards, in the heatmap exercise, the team identified two features bringing a lot of value: 1) the possibility of the senior setting the conditions in which to host the student, such as not allowing smokers, or availability to help make dinner; 2) the senior being able to accept, decline or ask for more information from students requesting to live with them. When asking for more information there is the possibility to have a meeting to know the person better and to see if the profiles match in advance.

After having selected the solution, the team constructed a 15-sketch storyboard where the solution would be applied to represent the story of a person using the platform. This was useful to clarify the process before designing a rough sketch to present the following day.

Friday – Consolidate Value

Pitch: On this day the team pitched Generation Link to Luis Filipe Lages – the founder of the VCW methodology. The presentation was divided in three parts: opportunity, solution and concept sketches. In the **opportunity** part, the team presented some context of the situation. After retirement, many people struggle with the transition from being busy to having lots of free time. Additionally, many of these experience loneliness since they are living alone and not meeting people through their work life on a daily basis anymore. Considering that they have a lot to offer, including availability, resources, and a life full of experiences, this could be used to create value for them and for the others. On the other hand, one of university students' biggest concerns is finding accommodation at reasonable prices. This issue is even more relevant in crowded cities like Lisbon, where it is almost impossible to rent a room with the right balance between price, location and conditions. That is why there should be a **solution** like Generation Link, a digital platform that links new seniors and students in a co-living concept, benefiting new seniors, students and the bank. The benefits are shown in Table 5.

Table 5: Generation Link Advantages

New Seniors	Students	Bank X
Earn Extra Money – Monthly Rent from Student	**Cheaper Rent –** Competitive price compared to similar platforms	**Revenues** to the Bank by collecting a fee in this process
Improve Life Quality – Student can help seniors perform tasks such as cleaning or cooking.	Connect with a person with **Local Knowledge**	More **Brand Awareness** and better **Bank Reputation** due to being a product with social impact
Reduce Loneliness – a Friend Living at your Place	**Quiet Environment** compared to living with students	**Business Diversification** in a situation where Banking sector is becoming more competitive
Gives Live Purpose – Feeling good by helping a student in need	Knowledge, Expertise and **Life Advice** from new seniors	Solution **aligned with the Bank X's strategy** to strengthen its presence in universities and among new seniors

Source: Team Own Analysis

As the last part of the presentation the team presented concept sketches, showing how the platform works. These are displayed in Appendix 14. Firstly, there is a sign up menu where the person can register either as a student or as a host. Then there are two separated avenues. If the person is a **host**, they should make a personal profile and create an ad of the room. When creating the ad, the host is required to fill in more information than in standard housing platforms, such as languages spoken, gender preference, if overnight guests are allowed, if smokers are allowed, what kind of student he/she looking for, etc. This is to ensure a best possible match with a student. Then, the host should wait for requests from students and choose the one that they prefer based on the profiles. The **student** should also create a profile, and make a personalized request when finding an offer that he/she is interested in. Once there is a match, the platform provides tools to facilitate the rental agreement, such as a payment processing platform, payment overview and sample contracts.

The feedback from the pitch was mainly positive. The solution was considered unique, promising and filling a market need, so it was decided as a GO. However, it was also mentioned that further research should be executed to define the best business model for it.

3.4 Intermediary Conclusions

The Front-End was a fundamental part of the innovation process. First, by analyzing the exploratory results the team found an opportunity to be explored – social isolation among new seniors. During the Sprint week, the team was able to reach a problem-solution fit with Generation Link, a concept that adds value to students, new seniors and Bank X.

4. Back-End of innovation: Product/Market fit

4.1 Back-End of Innovation Context

The Back-End of Innovation (BEI) is the part of innovation concerned with realization and execution. In the BEI, you continue to work with conceptualized ideas developed in the ideation phase (Front-End of Innovation) in order to eventually make them a reality. To ensure the BEI is done in a cost-efficient and timely manner, careful planning is essential (Medium 2016). In this phase, the aim is to optimize the product-market fit before launch, and to decrease the risks associated with this. After having generated an idea using the Value Creation Wheel methodology, the next step was to work towards a product/market fit.

4.2 Theoretical Background

The work done in this phase was based on the following theoretical frameworks/tools: The Customer Development Model, the Business Model Canvas and the Validation Board.

4.2.1 Customer Development Model

The Customer Development Model was developed by the serial entrepreneur Steve Blank in the 1990s. Blank developed the model after realizing most businesses who fail to launch new products do so because they try to force their products into markets without having a defined strategy to find and approach customers (Blank 2013). The model provides entrepreneurs and established companies with a systematic framework that helps them develop products more successfully through a deeper understanding of their customers and their problems.

The overarching goal is to prove that there is a profitable and scalable business model. The model consists of four distinct steps, divided into two phases. The first phase focuses on the search for the business model while the second phase is concerned with executing it.

An important characteristic of the Customer Development model is that it is a non-linear framework (see Appendix 15). Each step in the process is circular, and going backwards is not considered a failure, but a valuable part of discovery and learning. Additionally, there is an

iterative pivot in the customer validation step back to customer discovery to ensure that you do not move on with an invalid product/market fit, which occurs when a business model is not scalable and repeatable. Only after a company has proven that a group of customers with a repeatable sales process exists, and that this will yield a profitable sales model, they can move on to the execution phase. The steps of the process are summarized in Table 6.

Table 6: The four steps of the Customer Development Process

	Step	Explanation
Search	**1. Customer Discovery**	In this step, the focus is on understanding your customers and whether a proposed solution can help solve their problems or needs. This implies turning initial hypotheses regarding a business model, customers and markets into facts. This step can be divided into four phases: **1. State hypotheses** about the product, the customers, pricing & channels, demand, market and competition and list ways to perform tests on these. **2. Test the problem** from the first phase by testing hypothesized problems on potential customers. Achieve a complete understanding of their problems and needs, and go on to validating and/or modifying the hypotheses based on this. **3. Test the solution** by testing the hypothesized solutions on potential customers in their potential market. Use their reaction to determine if it is viable. **4. Verify** problem, product solution and business model, decide to iterate or to exit.
	2. Customer Validation	In this step, the goal is to find a product/market fit and to develop a proven and replicable sales model. Exhaustive testing is done on the business model from the previous step to assess if it's repeatable and scalable. If the business model fails quantitative pass/fail tests, you have to pivot back to step 1. This prevents unjustified spending on scaling and marketing activities on an invalid product/market fit. The validation step can be divided into four phases: **1. Get ready to sell** by preparing preliminary versions of a sales roadmap and sales materials. This step requires careful preparation and planning. **2. Try selling to a few visionary customers** by using the sales roadmap and materials from phase 1 in order to determine if customers will validate the business model, and whether you truly have the product/market fit. **3. Develop or refine positioning** by using insight from previous phase . **4. Verify** that you have learned enough to move on to the next step or if you need to return to customer discovery.
Execution	**3. Customer Creation**	In this step, the goal is creating end-user demand and drive that demand to the company's sales channel. Essentially, this step represents the necessary marketing activities to bring awareness about the product to consumers and create a desire for them to buy it. It is first now that the company moves into a higher spending mode.
	4. Company Building	In this step, the company or entity transitions from being informal and learning-oriented to formal and sustainable. With a validated business model in hand, the focus goes towards execution of the business model.

Source: Blank 2013

4.2.1.1 Business Model Canvas

The Business Model Canvas was developed by Alexander Osterwalder and Yves Pigneur in 2010, and is a tool designed to help design, develop and test new or existing business models. The Business Model Canvas consists of nine building blocks that together describe how a business will create, deliver and capture value (Osterwalder and Pigneur 2010). The resulting business model will serve as a blueprint for a strategy to be applied to the organizational processes, structures and systems. The canvas can be divided into two parts, the back-office,

positioned on the left-hand side of the canvas, focusing on costs and infrastructure, and the front-office, positioned on the right-hand side, focusing on value creation and the customers. A brief description of the Business Model Canvas' building blocks can be found in Table 7.

Table 7 The Business Model Canvas building blocks

Back-Office		Front-Office		
Key Partners The required network of suppliers and partners that ensure a working business model	*Key Activities* The most important tasks a business must do to ensure a working business model	*Value Propositions* The benefits of the product and/or service that create value for the customer segments	*Customer Relationship:* How the business will get, keep and grow their customer segments	*Customer Segments:* The group of people or organizations the business aims at serving
	Key Resources The most important assets needed to ensure a working business model		*Channels:* How the business will reach and communicate with customer segments to deliver value proposition	
Cost Structure All costs associated to operating the business model		*Revenue Streams:* The cash the business will generate from each customer segment (to create earnings, costs have to be subtracted from the revenue)		

Source: Osterwalder and Pigneur 2010

Each block of the Business Model Canvas is made up of assumptions that need to be validated. The order in which the blocks are made should be determined by the riskiness of the underlying assumptions, with the most risky assumptions being validated first. Since all other building blocks depend on them, the Customer Segments and Value Propositions building blocks are considered the most important in the Business Model Canvas.

The Customer Segments building block is crucial because the heart of any business model is comprised by the customers. When a company serves several interdependent Customer Segments, it is known as multi-sided platforms. According to Osterwalder and Pigneur (2010), a multi-sided platform only creates value to one segment if the other segment is present, and value is therefore created by facilitating interaction between these. The value of a multi-sided platform is contingent on having *positive indirect network effects* among the different groups (Hagiu 2007). This means that value for one group increases with the size of the other group.

The Value Proposition building block is important because it constitutes the reason why customers will turn to one product over another. A study published in 2014 revealed that more than 7 out of 10 new products or services flop because companies fail to sufficiently integrate customer value into the innovation process (Simon-Kucher & Partners 2014).

4.2.1.2   Validation Board

The validation board was developed by The Lean Startup Machine and is based on Eric Ries' Lean Startup Methodology (see Appendix 16). It is a tool developed to help entrepreneurs test assumptions of their concept and manage feedback from tests. The assumptions are tested in cycles, with each encompassing four important elements; stating relevant hypotheses, experiments, minimum success criterions and the final validation results. First, hypotheses about the product or customers must be explicitly stated. Risky assumptions should be tested first. After this, one should list experiments to test the stated hypotheses. In order to accept or reject hypotheses, minimum success criterions must be defined, which is a pre-determined breakpoint to validate or invalidate the assumptions. Lastly, based on the results obtained from the tests, key assumptions can be qualified or rejected.

4.3 Analysis: From Solution to Validated Concept

4.3.1 Stating the Initial Business Model Assumptions

After having come up with the conceptualized idea of Generation Link, the team stated initial business model assumptions using the Business Model Canvas. These assumptions were based on insights gathered from interviews with stakeholders and experts before and during the sprint, as well as desk research. The initial Business Model Canvas is shown in Figure 2.

Figure 2: Initial Business Model Canvas of Generation Link
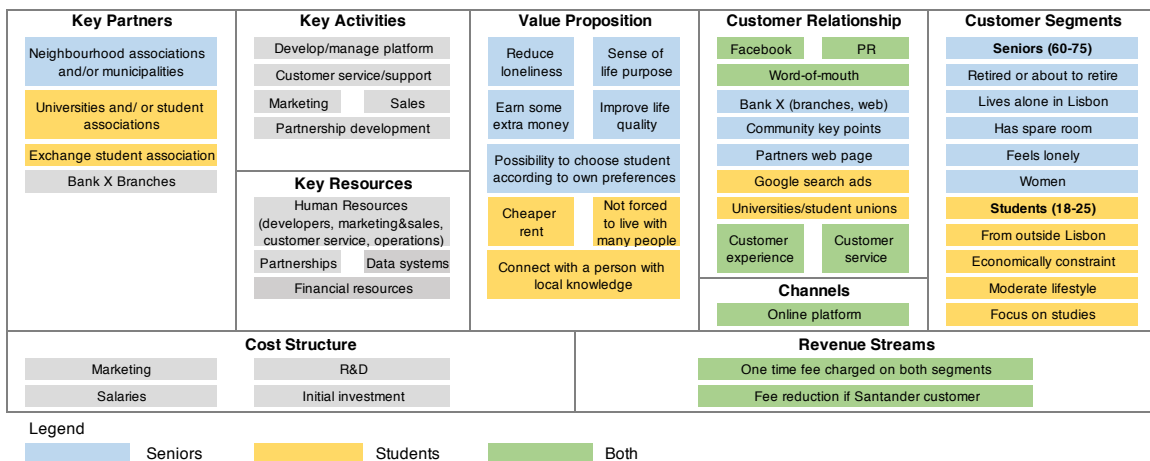
Source: Team Analysis

During this process, the team's main focus was on the front-office blocks of the Business Model Canvas (right-hand side). Descriptions of these building blocks are detailed in Table 8.

Table 8: Front-office Business Model Assumptions

Step	Explanation
Customer Segments	Generation Link is a **multi-sided platform** because it creates value for two interdependent customer segments, **seniors** and **students**. There is an indirect network effect between the two, since value created for each customer segment is contingent on the number of users of the other customer segment. The **senior customer segment** consists of people in the age range between 60 and 75 that live alone in Lisbon. This age range was chosen because it is around the age of retirement and because many seniors are still relatively healthy at this stage. It is also common that kids have moved out by this age. The transition from a busy and social work life to retirement may be challenging for many because it exacerbates social isolation and/ or the feeling of being lonely. While the platform can be used by both genders, females were chosen as the communication target because women may be more open to use this service and admit that they are lonely. This assumption was based on interviews with stakeholders in the sprint-week and from research on similar social projects. The **student customer segment** is made up of students coming from outside Lisbon who are economically constrained. Living with a senior person may not be appealing for all types of students. The team assumes that students who are more focused on their studies and less into partying may be more willing to use the platform.
Value Proposition	For the senior segment, the assumed value in using the platform is to **reduce loneliness**, gain a **sense of purpose** and **earn some extra money**. While seniors could easily rent out their available room on other platforms, Generation Link has a thorough matching process that allows the senior to carefully select the students that suits them the best. The senior also has the possibility to add tasks or help wanted in the rental agreement against a small reduction in the rent, such as getting help with groceries once a week or walking the dog. The main benefit for students using the platform is assumed to be the **affordable rent**. The platform has a maximum limit of €250 in monthly rent to ensure that prices are fair. This is still enough to make a significant contribution to seniors economic situation, considering that the average pension in Portugal was around €375 per month in 2016, according to Pordata. Some students dislike the living conditions of common student housing, such as having to live with many people, a lot of noise and dirty common areas. For these people, additional value from Generation Link is conveyed. Lastly, Generation Link allows the student to connect with a safe person with local knowledge. This may be especially relevant for students coming from other countries, and who want to learn the language (however, seniors who only want Portuguese-speaking students may choose this). Furthermore, in cases where parents are supporting their kids, Generation Link may be preferred because it is viewed as a safer option than the alternatives.
Customer Relationship	To acquire the senior segment, Generation Link should be promoted on **Facebook**, in **Bank X's branches** and **web-site**, on **partners web sites** or **physical spaces** and in **community key points**. The team's assumption is that by using a mixture of online and offline media, Generation Link will be able to reach the senior segment. For the student segment, the assumption is that they in large use the web to search for housing. To acquire this segment, advertising on **social media platforms**, such as Facebook and Instagram, as well as search advertising on Google is to be used. Due to the social aspect of Generation Link, the team also assumes that PR, such as coverage in newspaper and magazines, can also be used to acquire both segments. To keep both customer segments, Generation Link will rely on having positive customer experiences and deliver high level of customer service.
Channels	The **online platform** will serve as the channel for both customer segments. The team assumes that most people retiring today have a certain level of experience using online tools in their work life. Besides this, many seniors use the internet actively in their daily life too, and the use of social media amongst seniors is growing rapidly (Smart Insigths 2018). Students are highly experienced with using the internet for a variety of tasks in their daily life.
Revenue Streams	To generate revenue, a one-time fee is charged on both parts. This is a commonly used way to generate revenue amongst similar housing platforms. The one-time fee is made up of a percentage of the first monthly rent. For the students, the fee is charged when he/she enters the rental agreement. For the senior, the fee is deducted from the first rent. This team assumes this may reduce seniors' pain of paying, since they are not actively paying.

Source: Team own analysis; Smart Insigths 2018; Pordata 2018a

An overview of the matching process of the platform is shown in Appendix 17.

4.3.2 Validating Business Model Assumptions

The Customer Development model and validation board were central in organizing the work of the innovation project. Through interviews with customers, stakeholders and experts, paired with desk research, sufficient evidence was gathered to validate the problem of social isolation and loneliness in the previous phase of the project. In this phase, the work continued with validating the solution, Generation Link. The goal was to work towards a product/market fit. Four validation cycles were completed. An overview of these are shown in Table 9. The assumption tested were chosen based on their riskiness, where the most risky were tested first.

Table 9: Validation Cycles

Cycle 1	Cycle 2	Cycle 3	Cycle 4
Customer Segments	Value Proposition	Value Proposition/ Customer Relationship/ Channels	Customer Relationships/ Channels

Source: Team own analysis

4.3.2.1 Validating the Customer Segments

Assumptions tested: For the senior segment, the team tested whether seniors living alone were feeling lonely and had a desire for more purpose in their life after retirement. In addition to this, the team also wanted to test their hypotheses that more and more seniors, especially women, are living alone in Lisbon. For the student segment, the hypotheses was that students from outside Lisbon were having a hard time finding rooms they considered affordable, and that some students disliked having to rent a room in an apartment with many others. The team also wanted to test an hypothesis that the demand for student rooms in Lisbon is increasing.

Experiment: Assumptions were tested with interviews from both segments and desk research.

Results: The interviews with the senior segment validated the team's assumption that seniors living alone are facing a problem of loneliness and have a desire for more purpose in their life. The main findings from the desk research was that there is a significant number of seniors living alone in Lisbon, and that this number is growing, something that indicates their potential of increasing the supply of student rooms. In 2017, there were approximately 147 500 single

person households above 65 years of age in the Lisbon metropolitan area (Pordata 2018b). This number has been increasing steadily in the last years, with an average yearly growth of over 3% since 1999. While there is no way to know how many of these have a spare room and/or feel lonely, the number is promising. In addition, the majority of 65+ single person household in Portugal are made up of women (Instituto Nacional de Estatística 2012).

The student interviews also validated the assumption that students are price sensitive and find the current rental prices too high. Several students interviewed also expressed that they found it problematic to live with many other students because of issues with noise and cleanliness. The desk research showed that there is indeed an increasing demand for housing among students in Lisbon. According to a market report published by Uniplaces in 2017, the increasing demand for student rooms in Lisbon can be explained by the growth of tourists, and the increasing number of international students (Uniplaces 2017). The report also concluded with Lisbon being the most expensive city in Portugal for student rooms. The strong demand can be reflected in the rising rental prices of student rooms. From 2016 to 2017, the average price for a room from Uniplaces in Lisbon increased by 10%. By contrast, it only increased 3% in Porto.

Conclusion: The results validated the teams assumptions of the customer segments. The team gathered evidence that both segments experience the pain that Generation Link seeks to solve – loneliness and desire for a life purpose for the seniors, and affordable rent for the students.

4.3.2.2 Validating the Value Proposition

Assumptions tested: In this part, the benefits of Generation Link were tested. For the senior segment, the team tested whether seniors thought living with a student would reduce their loneliness and provide them with a sense of life purpose. In addition, the team also tested if seniors found it valuable to be able to choose the student they lived with, receive help in daily tasks and if it was important for them to earn money. In the third cycle, additional features relating to security were added and tested. This consisted of a verification feature, a helpline

and a feature allowing the senior to contact students before deciding, either in person or by video call. For the student segment, the assumptions tested were if students would be willing to use the platform for cheaper rent and if they valued living with fewer persons.

Experiment: The validation of the value proposition for the senior segment was done over two cycles, while the student segment was completed in one cycle. The team interviewed a total of 19 seniors to test the senior segment assumptions. The team had some difficulties reaching people that met the segment requirement, or admit that they met it, such as living alone and having a spare room. To test the value proposition on students, the team interviewed 5 students and performed an options test with 12 students. In the interviews, the landing page for students was shown (see Appendix 18), and questions were asked to assess whether they conveyed the benefits and their willingness to use the service. In the options test, displayed in Appendix 19, students were shown four different housing ads and asked to rank them. One of the options was a room from Generation Link, while the three others were from Uniplaces, Idealista and OLX. The four options differed on factors such as price, location and number of flatmates. The team strived to find realistic options by selecting rooms that were averagely priced based on their characteristics. A description of the different options are shown in Appendix 20.

Results: Overall, the majority of seniors interviewed liked the idea. They especially liked the fact that they could feel valuable by helping students. However, some raised concerns regarding the security of the platform. Furthermore, most people interviewed did not appreciate the idea of incorporating tasks in the rent. One of the interviewees, a woman who fit into the target segment, said it would be important for her to meet the student beforehand. She did not want or require the student to do any task, and she did not even want the student to pay. Out of the interviewees who did not fit the segment requirements, several said they would want to use the service if they lived alone. Although this cannot be considered as any accurate validation of the product, it shows that people are enthusiastic about the concept. Out of the 19 interviewed, only

3 fit completely into the segment criteria. Out of these, two were very excited about the product, both female. The team retrieved the contact information of one of these and met her the following week, something that clearly demonstrated her interest. The last person liked the idea, but did not think she could rent out a room since she did not own her apartment herself.

Both tests validated the value proposition for students. Out of the student interviews, 2/5(40%) students said they were willing to use the service given that the price was lower than for equivalent rooms at other places. In the options test, shown in Appendix 21, 7/12(58%) chose Generation Link as their first option. The options test also validated the assumption that students are price sensitive, as the expensive option was ranked last the most frequently (8/12).

Reaction to Feedback: In the third cycle, the team decided to add different features to the platform to make security a part of the value proposition based on the insights from the previous cycles. Because seniors might differ in how much security is an issue for them, the security features are optional for seniors. One of the features is a verification of the student, similar to the feature of www.couchsurfing.com, which is a platform for finding or providing accommodation for travelers. The verification would be done by the bank, confirming that the student in fact is a real person, either done online or in a Bank X branch. Furthermore, a feature that allows seniors to meet or speak with the student in advance was also added. By getting an impression of the student and their trustworthiness in advance, seniors might experience the platform as more secure. However, this would scrutinize the revenue model since the users could then just bypass the platform and make private arrangement to avoid the fees. The suggested solution to this was to bundle in an insurance, and change to monthly fees, so that each month 15-20% of the students payment was deducted. This insurance would cover any accidents or damages in the house, mitigating some risks of housing a student. In this way, additional security would assumedly be added and the senior would be incentivized not to bypass the platform. Lastly, a helpline feature was added, allowing users of the platforms to

call for assistance with any potential issues. Seniors presented with these features said they would lessen their security concerns. Additionally, several of the interviewed liked the fact that the platform was associated to Bank X since it adds credibility to the platform.

Conclusion: The team was able to prove that Generation Link solves the problems faced by the customers segments. For the senior segment, the assumptions regarding the benefit of reducing loneliness and giving a life purpose were validated. The team also validated that seniors would value some additional income. The results from the interviews showed that most seniors would not want to impose tasks on the students. Seniors see this more as a platform where they can have a life purpose by providing help to students, and not as a mean to get help in their daily life. The team therefore decided to drop the feature in which seniors can add tasks in the rent agreement. Additionally, the team decided to make security a key benefit. A variety of security features were suggested, ranging from verification of the student, possibility to contact the student in advance and a bundled insurance. The value proposition assumptions of the student segment were all validated. While the team gathered strong evidence from the student segment, the evidence for the senior segment is less strong due to difficulties reaching seniors that completely fit the profile or admit that they fit the profile.

4.3.2.3 Validating the Customer Relationship and Channel

Assumptions tested: Assumptions regarding the customer relationships and channels were tested together. For the senior segment, the assumptions to be tested were that senior customers should be acquired online, through Facebook advertising, and off-line in various community key points. Additionally, the assumption of only having an online distribution channel for both segments, the platform itself, was tested. Furthermore, for the student segment, the hypotheses was that students use the internet to search and book accommodation, and thus, social media and other online media should be used to acquire this customer segment.

Experiment: For the senior segment, a landing page and leaflet were created to measure the effect of online and offline efforts to acquire customers (see Appendix 22 and 23). Facebook-advertising was used to drive traffic to the landing page, www.genlinkpt.com. The team ran one campaign in each of the cycles that costed €12-15 each, and some improvements to the landing page were made in between. The Facebook ads are displayed in Appendix 24. Furthermore, on the landing page there was a call-to-action, where visitors could register their e-mail and/or phone-number to test if there were any visitors with a very strong interest. 200 leaflets were distributed in community key points, such as pharmacies, churches, restaurants, shops, bank branches and local parishes, as well as in private mailboxes. All leaflets contained information about Generation Link and contact information. Additionally, desk research was conducted to assess the appropriateness of only having an online distribution channel.

For the student segment, the team interviewed 20 students who had moved to Lisbon to study, 16 Portuguese and 4 international. The students were asked how they searched for and found their accommodation prior to moving to Lisbon, if they used the internet or their social network.

Results: A total of 147 clicks redirecting senior Facebook users to the landing page were registered. Results are shown in Appendix 25. The first campaign achieved an average of 14 clicks per day, while the second campaign had 7 clicks per day. These results were in line with Facebook's projected numbers. No calls-to-action were recorded from the landing page and the team was not contacted by any recipients of the leaflets either. The main findings from the desk research were that Portuguese seniors' internet usage and social media participation is growing, but substantially lower than the European average. In 2016, only 26% of Portuguese elderly (aged 65-74) used internet weekly, while the European average was 45% (Eurostat 2017). For Portuguese aged 55-64, that figure was 44%, indicating that the internet usage is also low for the younger part of the senior segment, aged 60-64 (Observatório das Desigualdades 2017).

Additionally, only 15% of all Portuguese Facebook users were above 55 in 2017, suggesting a low social media participation in this age group (NapoleonCat 2017).

The interviews with students showed that 14/20 student (70%) of the students used the internet to search for accommodation. 11 of these (55%) ended up booking their rooms online. The remaining interviewed found a place through their family (4/20), friends (2/20) and randomly, asking around in the neighborhood (3/20).

Conclusion: The Facebook ad was successful in driving traffic to the landing page, showing that targeted Facebook users above 55 displayed interest in the concept. This means that social media can be used to acquire some senior customers. However, since the portion of seniors actually using internet and social media is low, alternative ways are required to acquire them. The leaflet distribution did not generate any calls-to-action, so the team was not able to validate the assumption regarding offline customer acquisition. Alternative ways to acquire seniors offline should be considered and tested, such as having promoters. Regarding the channel, it is clear that the team's assumption was wrong. The low internet usage among seniors clearly indicated the need for additional channels. The team suggests using Bank X branches as a potential channel. The assumptions regarding the student segment were validated. Students should be acquired online and it is sufficient to only have an online distribution channel. Further validation should be carried out regarding the customer relationships and channels.

4.4 Intermediary Conclusion

The resulting Business Model Canvas after completing four validation cycles is displayed in Figure 3. The team validated hypotheses about the customer segments and value proposition for both segments. Based on the insights from the validation, the team decided to drop the feature where seniors can add tasks to the rent agreement and add security features. The team was also able to validate the online platform as a channel for the student segment. Additional validation of the customer relationships and channels for senior segment should be carried out.

Figure 3: Resulting Business Model Canvas for Generation Link

Key Partners ✘	Key Activities ✘	Value Proposition ✔	Customer Relationship ✚	Customer Segments ✔
Neighbourhood associations and/or municipalities	Develop/manage platform	Reduce loneliness / Sense of life purpose	Facebook / PR	**Seniors (60-75)**
Universities and/ or student associations	Customer service/support	Earn some extra money / Security	Word-of-mouth	Retired or about to retire
Exchange student association	Marketing / Sales	Possibility to choose student according to own preferences	Bank X (branches, web)	Lives alone in Lisbon
Bank X Branches	Partnership development	Cheaper rent / Not forced to live with many people	Community key points	Has spare room
	Key Resources ✘	Connect with a person with local knowledge	Partners web page	Feels lonely
	Human Resources (developers, marketing&sales, customer		Google search ads	Women
	Partnerships / Data systems		Universities/student unions	**Students (18-25)**
	Financial resources		Customer experience / Customer service	From outside Lisbon
				Economically constraint
			Channels ✚	Moderate lifestyle
			Online platform	Focus on studies
			Bank X Branches	

Cost Structure ✘		Revenue Streams ✘
Marketing / R&D		Fee deducted from monthly payment (+bundled insurance)
Salaries / Initial investment		Fee reduction if Santander customer
Insurance		

Legend

	Seniors		Students		Both		Changed

✘ Not validated   ✚ Needs further validation   ✔ Validated

Source: Team own analysis

5. Recommendations

5.1 Answer to Challenge: Generation Link

The aim of this Work Project was to create and validate a new concept for Bank X by answering the following challenge: *"How can Bank X create value for the wave of new seniors?"*.

To develop a concept that was in line with the challenge, the team focused on getting an in-depth understanding of new seniors and the problems they are facing. One of the main findings from the research carried out was that loneliness brought on by social isolation is a pressing and growing problem among retirees. Additionally, many new seniors expressed concern about having purpose in life after retirement.

To respond effectively to these worrying problems, the team developed **Generation Link**, a housing platform that aims to connect seniors with empty rooms at their places with students looking for accommodation. The proposed solution brings value to new seniors in three ways. First of all, by living with another person the problem of **loneliness is reduced.** Secondly, being able to connect with and help a student makes them feel meaningful, and thereby **enhances their life purpose**. Thirdly, Generation Link allows seniors to **earn some additional money**, representing a significant contribution to an average pensioner's budget.

5.2 Action Plan

5.2.1 Activities and Time-frame

An action plan was created to provide guidance on how Bank X should proceed the work with Generation Link over the next nine months. Validated learning will remain an important factor for future success, and the Build-Measure-Learn approach should continue to be applied. A time-line with the main activities to be carried out is shown in Figure 4.

Figure 4: Generation Link Time Line

	June	July	August	September	October	November	December	January	February	March
Additional Front-End Validation	VALIDATION									
UX/UI Design			UX/UI							
Front-End Development					FRONT-END		Minimum Viable Product			
Back-End Development						BACK-END				Final Launch
Testing	ITERATIVE TESTING									
Marketing/ Legal/ Partnerships			MARKETING / LEGAL / PARTNERSHIPS							
Other Channel Development										
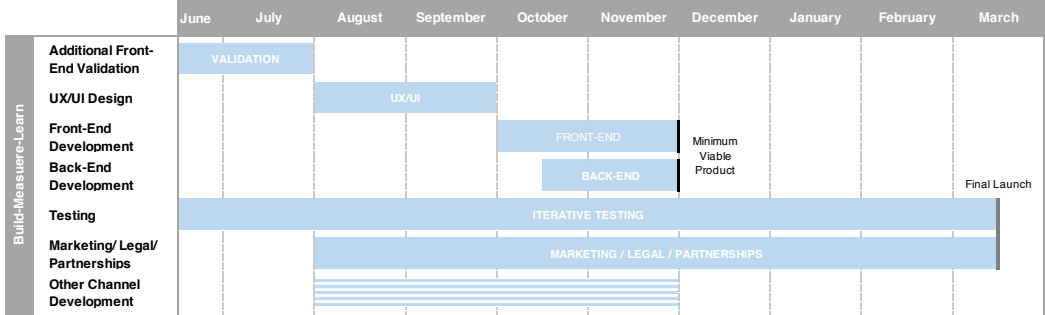
Source: Team own analysis

From mid-June to August, **additional front-office validation** should be performed, with focus on validating the senior segment distribution channels, customer relationship and revenue streams. As the team had difficulties reaching the senior segment, strong emphasis should be placed on designing a strategy to effectively reach them for validation experiments. **UX/UI**[12] **design** of the platform should start right after the validation and last until October. The platform should be tailored to work for both customer segments, but additional caution should be placed on the senior segment. Bank X should also start working on building **strategic partnerships** with relevant entities, such as universities or local parishes, and **manage legal matters** related to the new product at this time, as it may take some time to settle. The team also advices Bank X to begin marketing early and to start **reaching out to potential future clients**, especially from the senior segment. This should be done both online, by collecting contact information from a landing page, and offline, in Bank X's branches and through other potential partners.

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[12] **UX/UI Design**: User experience/ User interface design

From October to December, the **front-end development**[13] should be performed. The **back-end development**[14] should begin shortly after, so the majority of the two processes run in parallel. This will ensure that the overall development process of the platform is smoother. A prototype should be developed quickly so that **MVP testing** can begin. The team suggests to arrange focus groups to understand the user experience and incorporate any feedback received.

Depending on the results from the validation of the senior channels, **development of other channels** may be required. For instance, if Bank X decides to use their branches to reach the senior segment, a system in which Bank X representatives can provide the service must be developed. This should take place at the same time as the UX/UI and front-end/back-end development. Thorough testing of this channel also needs to be carried out.

Until the **official launch,** which is set to be in mid-March, the focus should be on **testing** the platform. This process will take on an iterative design, where iterations will be done based on customer feedback. Before the official launch, a first version of the platform will be set up for selected **beta testers**. The beta testers will be highly encouraged to provide feedback about the platform to be incorporated before the official launch. Once the platform is launched, customers should be strongly encouraged and incentivized to give feedback from their experiences. In this way, Bank X can continue to learn valuable things about the customers, and their needs.

5.2.2 Financial & Human Resources Needed for Implementation

Bank X will need to allocate resources to launch and operate Generation Link. This consists of both financial resources and human resources, such as experienced personnel from the bank.

To carry out the necessary activities, a **development team** is needed. This will require both external people and people from inside the bank. The team suggests hiring 5 external people; one UX/UI designer, one front-end developer, one back-end developer and two business

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[13] **Front-End Development:** Development of the part of a platform that a user can see and can interact with
[14] **Back-End Development:** Development of the core functional logic and operations of a platform

developers. The bank should provide an additional 3 persons to work alongside and supervise the rest of the external team. Besides the salaries to the development team, the development process will drive other costs, such as **testing** (arranging focus groups, reaching the segments online on paid media and printing materials), **marketing activities** and **managing legal matters**. In addition, there will be some **initial capital expenditure**, such as the purchase of servers and software, and **operational capital expenditures**, such as rent for office spaces. However, these expenditures can be minimized by using Bank X's already existing resources. Once the platform is launched, a **permanent team** is required to operate and maintain the platform, provide customer service, manage partnerships and marketing-related activities.

5.3 Impact for Bank X

5.3.1 Benefits of implementing Generation Link

Firstly, Generation Link offers a **solution to social problems** currently faced by seniors and students. Implementing the solution may therefore reinforce Bank X's image as an institution that cares for the well-being of society. Pleased users of the platform are likely to have an enhanced customer satisfaction with Bank X. This will likely improve Bank X's reputation and positively impact their ability to attract and retain customers. Additionally, implementing the solution is in line with Bank X's current strategy of improving their presence in universities.

Secondly, Generation Link will allow Bank X to **diversify** its current portfolio. Generation Link represents a potential revenue stream which is not directly tied to the market interest rates, in contrast to most of Bank X's revenue generating activities. Additionally, faced with the increasingly tough competition in the banking sector, Generation Link offers Bank X a unique opportunity to enter a new and potentially less competitive market. Lastly, implementing Generation Link allows for cross-selling. Potential Generation Link customers may be incentivized to become Bank X customers whereas Bank X could promote Generation Link to their already existing customers with no chance of cannibalization.

5.3.2 Market Size

In terms of market, Lisbon would be the first city to launch the platform. In 2017, there were approximately 147,500 persons above 65 living alone in the Lisbon Metropolitan Area, more than in any other Portuguese city. Even taking into consideration that not all of them have an empty room, or a desire to live with a student, it is fair to assume a relevant market size. On the other hand, the demand for accommodation in Lisbon is increasing, which is reflected by the significant increase of price per square meter in the last few years (Publico 2018). Considering there are a lot of universities in Lisbon, and that students are price sensitive, this would be an appropriate time and place to launch this platform. After implementing in Lisbon, Generation Link has the potential to succeed in other student-dense cities like Porto or Coimbra.

5.3.3 Key Performance Indicators

Customer Acquisition: It is crucial to measure how Generation Link's existing customers heard about the platform, i.e. word-of-mouth, online paid advertisement (Google Ads, Facebook), offline paid advertisement (TV/Radio/Newspaper), flyers and bank branches, to know the best channel to acquire customers. In order to monitor results from online paid media, the Click-Through Rate (CTR) would be a suitable KPI. The CTR is the ratio of users who clicked on a specific link to the total number of users who viewed the advertisement. Another KPI that should be used to monitor the customer acquisition process is the Customer Acquisition Cost (CAC). The CAC measures the costs of acquiring new customers by adding up marketing costs for a given period and dividing them by the number of new customers. This KPI is very useful because it accesses both the results from online and offline advertising.

Customer Retention: Considering the main source of revenue will be a commission fee deducted from the monthly rental payment of the student, customer retention will be crucial. For retention rate to be high, Generation Link should offer incentives in the long term either through a secure and simple payment platform, an insurance deal together with the housing

agreement or a good customer service that would solve conflicts in an optimal way. The Customer Lifetime Value (CLV) is a suitable KPI measuring the amount of money a customer brings in over the entire time he/she does business with a company.

CLV:CAC: Lastly, the Customer Lifetime Value to Customer Acquisition Ratio (CLV: CAC) should be measured. This KPI compares the value a customer brings to the company to the cost of acquiring, optimally being 3:1. If it is lower, it means the company is spending too much on customer acquisition, while if it is too high the company is not spending enough. This KPI is also useful to determine which media you should spend more or less money on.

6. Limitations

The team identified several limitations during the Work Project that may have had an impact on the quality of findings and conclusions inferred.

TIME: The team was given 3 months to propose an answer to the challenge. Considering the short duration of the project and the extensive process conducted by the team to analyze the situation, identify an opportunity, design a solution and then validate it in several validation cycles, the team was constrained on the time they had to allocate in each phase of the project. With more time, the team could have done more in-depth research in the exploratory phase and carried out additional validation of the suggested solution.

SAMPLING: Other factors that may have limited the quality of the findings are related to the sample quality and sample size. In the exploratory phase, most of the interviews conducted were done to family and friends, which might have given biased results. Due to time-constraint, language barriers and a small team size, some sample sizes were limited. A larger sample size would strengthen the reliability of the findings.

MVP: The non-development of a Minimum Viable Product was a limitation in the validation phase. Having an MVP would allow to test real actions from users, something that would have given better validation than by just measuring intents from potential customers.

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APPENDIX

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Appendices

Appendix 1: Market Share of the Five Major Banks in Portugal

Source: Associação Portuguesa de Bancos 2016

Appendix 2: Innovation Commitment of the Five Major Banks in Portugal

Source: Team own analysis

Appendix 3: Lean Startup – Build, Measure, Learn

Source: Ries 2011

Appendix 4: Value Proposition Canvas
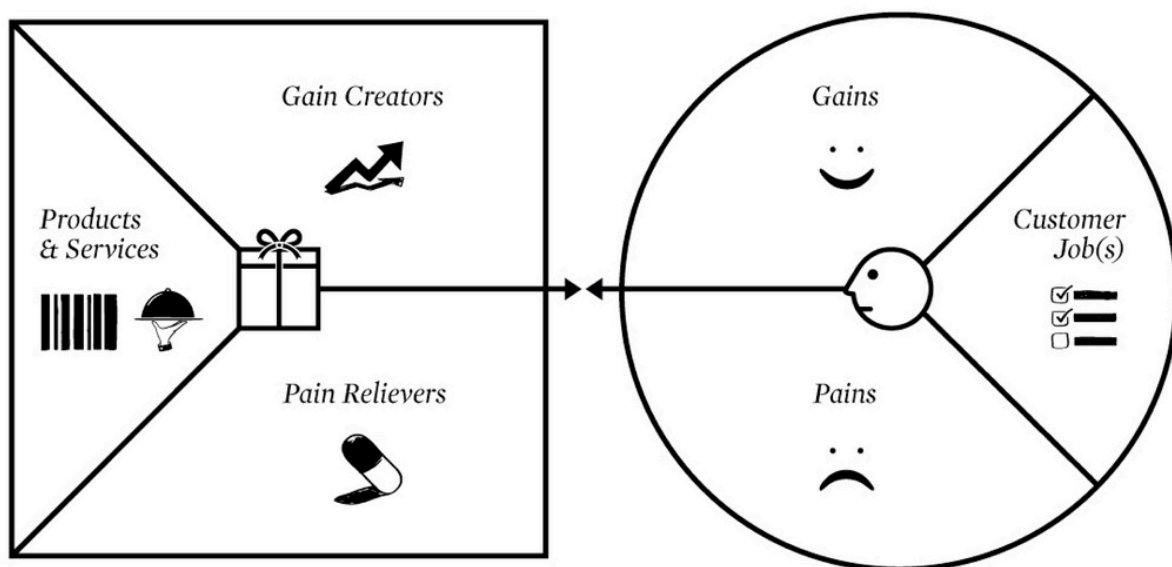
Source: Osterwalder, Alexander, and Yves Pigneur 2010

Appendix 5: Exploratory Research – Interview Guide for New Seniors

PART 1: GENERAL QUESTIONS
1. Tell me about a normal day of our life
2. Follow-up questions (kids, marital status, age, job – salary, retire)

PART 2: KIDS
3. How many? How old? What do they do? Are they married? (Do they go to the college/work?)
4. How do you manage savings for your children? What was the hardest part? Why was it so hard? What have you done to solve these problems? What didn't you like about the solution?
5. When you think about your kids' future, what are your biggest worries? Do you think about this often?

PART 3: INDIVIDUAL QUESTIONS
6. Do you know how much you spend on groceries, restaurants, shops, etc? Is this a problem for you (wish to have more control)? Why?
7. How did you handle large unexpected expenses (e.g. car accident, big phone bill, leakage), how do you handle it?
8. From 1 to 10, how frustrated do you feel dealing with complex bureaucrat language (e.g. tax, insurance, banks, contract, legal stuff)? Why? Example? What bothered you the most in this situation? How did you solve, last time you had this problem?
9. When you retire what are your expectations?
10. Do you expect any issues in this period of your life(retirement)? What?
11. Do you have any idea of how much will you earn pension?

PART 4: PARENTS
12. How are your parents? (Are they healthy? Live at home?)
13. Do you think your parents need assistance to manage their finances?
14. Do you help them?
15. When you think about your parent's finance, what's your biggest concern?
16. How did you find the heritage process with the bank?
17. Was it more work/hassle than you initially expected?

PART 5: HOUSEHOLD
18. With whom are you living together?
19. What relatives do you have to take care on a regular basis? (how often?)
20. How do stay connected with your family? (physical contact? WhatsApp? Facebook, etc.?)
21. What type of support do you give?
22. Who is financially dependent from you?
23. Do you know what's going to happen with your heritage when you die? Did already plan anything? /do you feel in control of your heritage?
24. From a scale 1 to 10, how worried are you with problems that might be caused by your heritage? (types of problems include: social, bureaucratic, tax-related, etc.).
25. Have you ever faced any financial stressful situation? If yes, how?
26. How did the financial crisis affect you and your family?
27. When you think about your family's future, what concerns do you have?
28. What was the biggest challenge in your household so far?

PART 6: LOVE LIFE - DIFORCE
29. Consequences of divorce: did you have to move? Get a new car?
30. When you think back about the practical parts of the divorce process, what was the most challenging? Do you feel like some of these processes where more complicated then they to? What about the bank? (common bank account, assets, mortgage, loan)
31. How did the divorce affect your financial situation?

Source: Team own analysis

Appendix 6: Identification of New Seniors Needs/Jobs to be Done

Source: Team own analysis

Appendix 7: Customer Profile of New Seniors

Source: Team own analysis

Appendix 8: Persona – "Maria Alice"

Source: Team own analysis

Appendix 9: Customer Journey
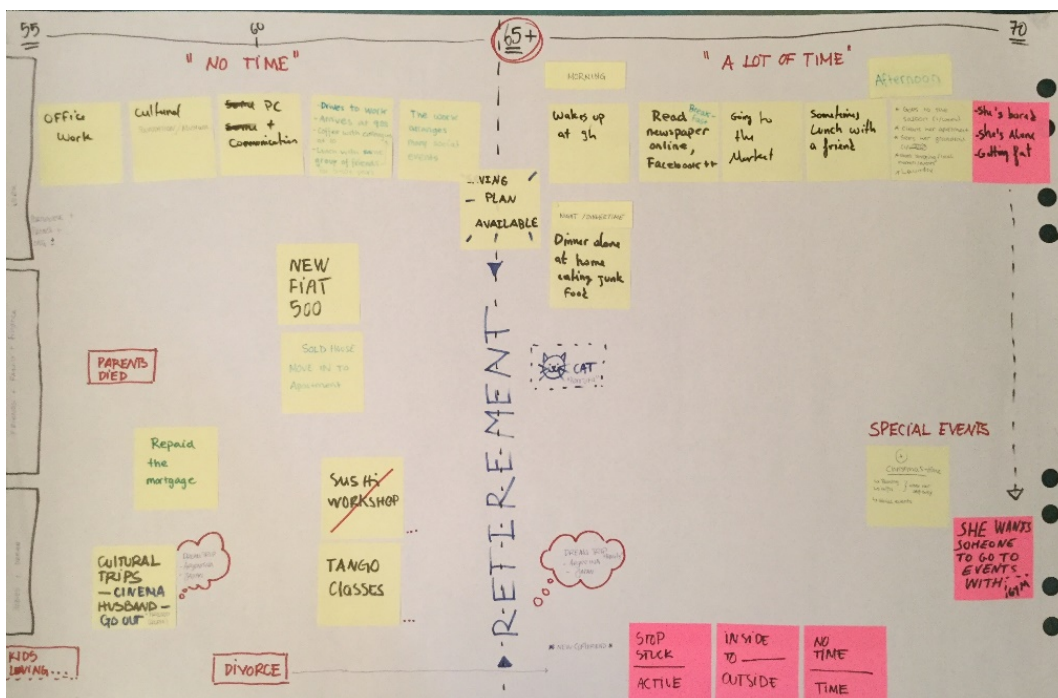
Source: Team own analysis

Appendix 10: Ideas Gathered during Sprint Week

	Name	Description
Co-living	Generation Link	Platform that enables seniors to rent empty rooms in their house to university students looking for cheap accommodation.
	Seniors Linker	Platform that enables lonely seniors to rent empty rooms at their place to other seniors in the same situation
	Republica for Seniors	Place where seniors can live in a community environment and do daily activities together
Connect People	"Near Me" Zomato	App that enables seniors to find social events where they can connect with "peers"
	+65 Portfolio Network	Platform where retired people can showcase their work and meet others with same interests. Possibility to create events for people with the same interests
	Senior University	Workshops for seniors in several areas such as cooking, English or financial literacy
	Happy Wednesdays	Weekly conferences for seniors organized at Bank Branches
	Christmas Match	Program to bring together isolated people during Christmas
	Now What (Revolut +65)	Digital Account, in which students can spend their money through their smartphones -App, facilitating payments online and when travelling
	Coupon/Discount App	Connect businesses willing to sell with discount outside of busy time period to seniors (e.g. early dinner, midday cinema, etc.)
Keep Working	Matcherly	Match companies that need specific expertise with seniors' experts
	Volunteer Platform	Platform where seniors can sign for volunteer work
	Task/Job Bank	Platform to connect elderly with people that need their service
	Advisory Service	Advisory service given to seniors to help them overcame barriers to start own business
	From Idea to Business	Acceleration program for seniors that have business ideas. Possibility to pitch for investors, have mentors that ca help in specific areas, etc.).
New Banking Features	Delivery Bank	To face physical constraints of some seniors' clients, bank provides a service where one employee would go to seniors' house to perform some banking tasks, e.g. sign contract
	Travel Card	Card provided by the bank useful for travel by including health service, insurance and transportation in some places
	Digital Bank Account	New features in bank account like a chat and a bot
	You Become a Bank	Provide banking services to your family/friends by having the possibility to have shared accounts for common expenses or gifts

Source: Team own analysis

Appendix 11: Filters Gathered during Sprint Week

	Name	Description
Product	Time	Time needed to develop/service
	Link	Does it promote creation of links with others satisfying need to connect
	Budget	Financial resources needed to implement the product
	Brand Awareness	Can it improve reputation and reach of Bank X among population
	Tech Feasibility	How demanding is to develop it in terms of technology complexity
	Intuitive	How easy is it to use for the common customer
Market	Dimension of Market	Does the product fit a lot of people needs
	Network Effect	Does it have more value with more people using it
	Innovative Externally	If it is different from what already exists in market (vs competitors)
	Innovative Internally	Does it correspond to a diversifying strategy considering Bank X current offer
	Location	Is the product/service able to be in several locations
Customer	Pay	Would someone pay for having it?
	Acknowledgment	Do customers realize the importance/quality of it
	Interest	Do people want
	Use	Are customers willing to use it
	Channels	Are customers reachable through the channels appropriated for that product
	Tech Savviness	Does is require customers to be tech-savvy
	Active	Keeps customers active
	You Become a Bank	Provide banking services to your family/friends by having the possibility to have shared accounts for common expenses or gifts

Source: Team own analysis

Appendix 12: Filters after "Poker Method"

Source: Team own analysis

Appendix 13: Solution Sketch of Generation Link
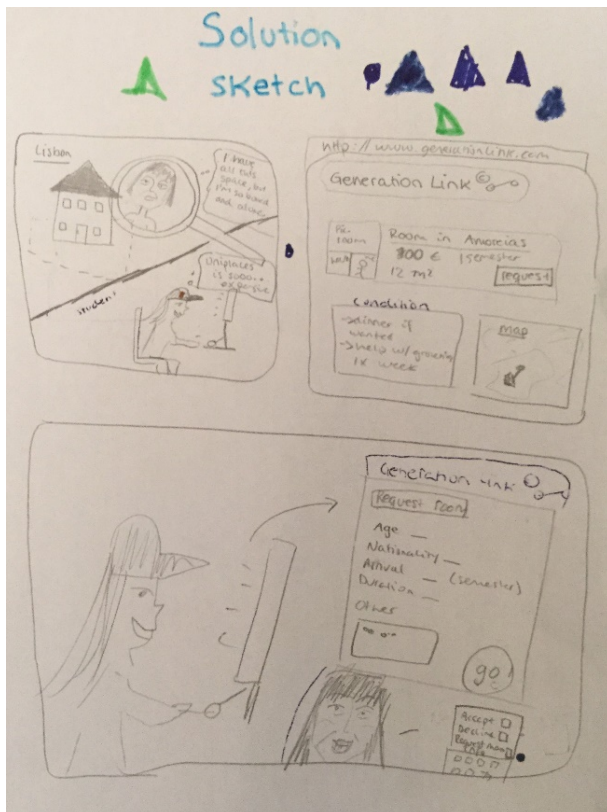
Source: Team Own Analysis

Appendix 14: Concept Pictures and Prototypes Shown in Pitch
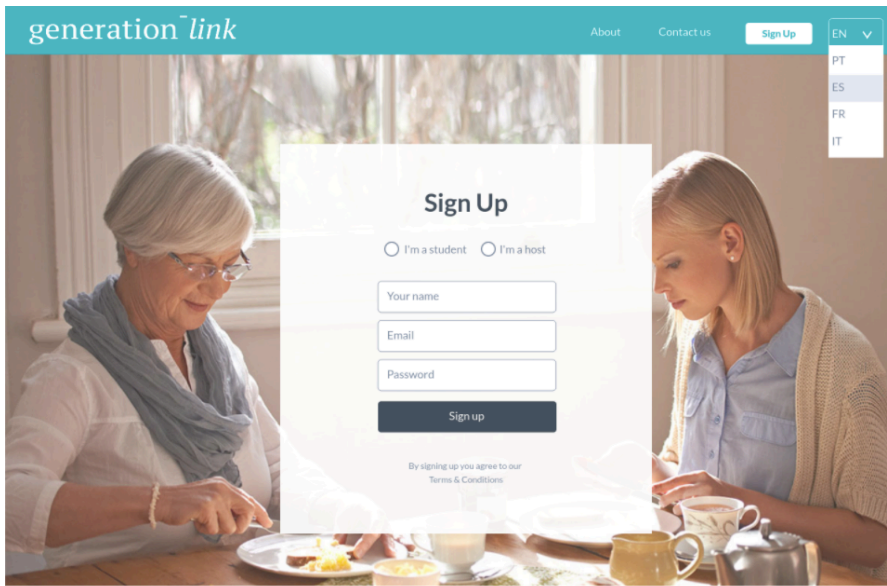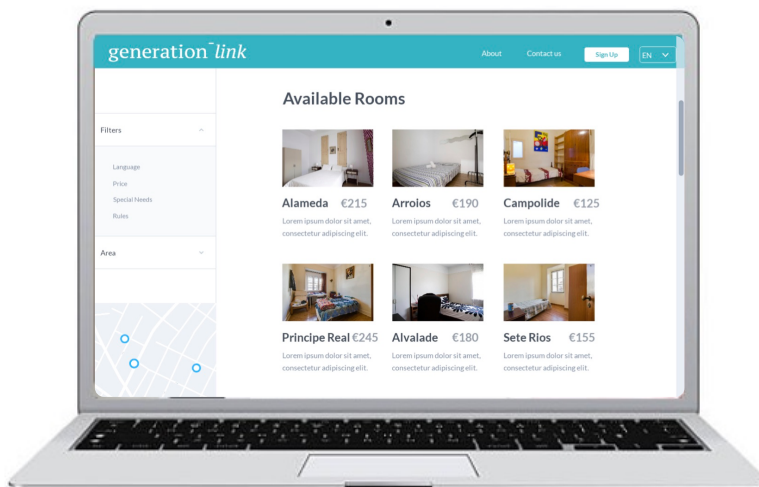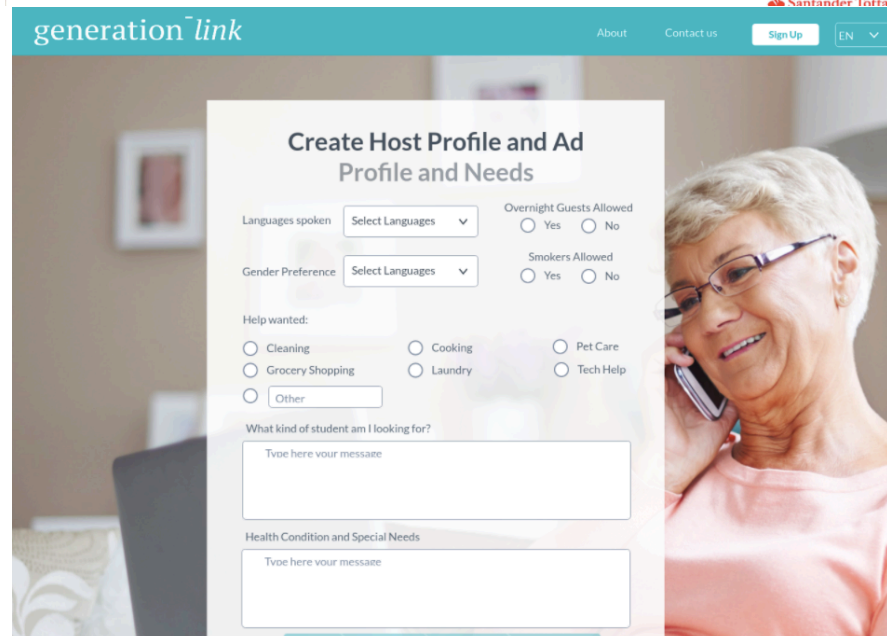
Source: Team own analysis

Appendix 15: Customer Development Process
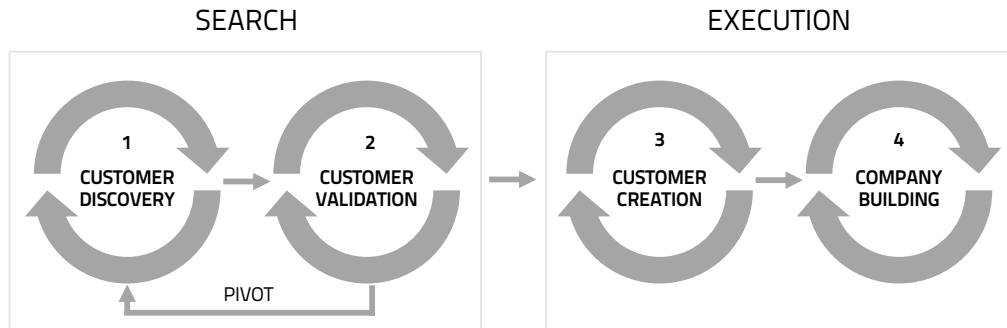
Source: Blank 2013

Appendix 16: Validation Board

Source: Lean Startup Machine 2018
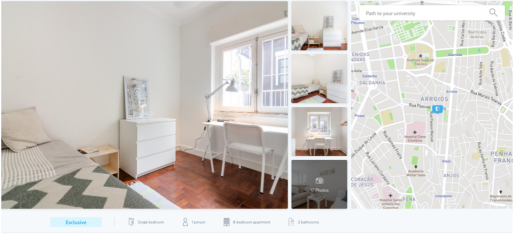
Appendix 17: Matching Process Senior and Students
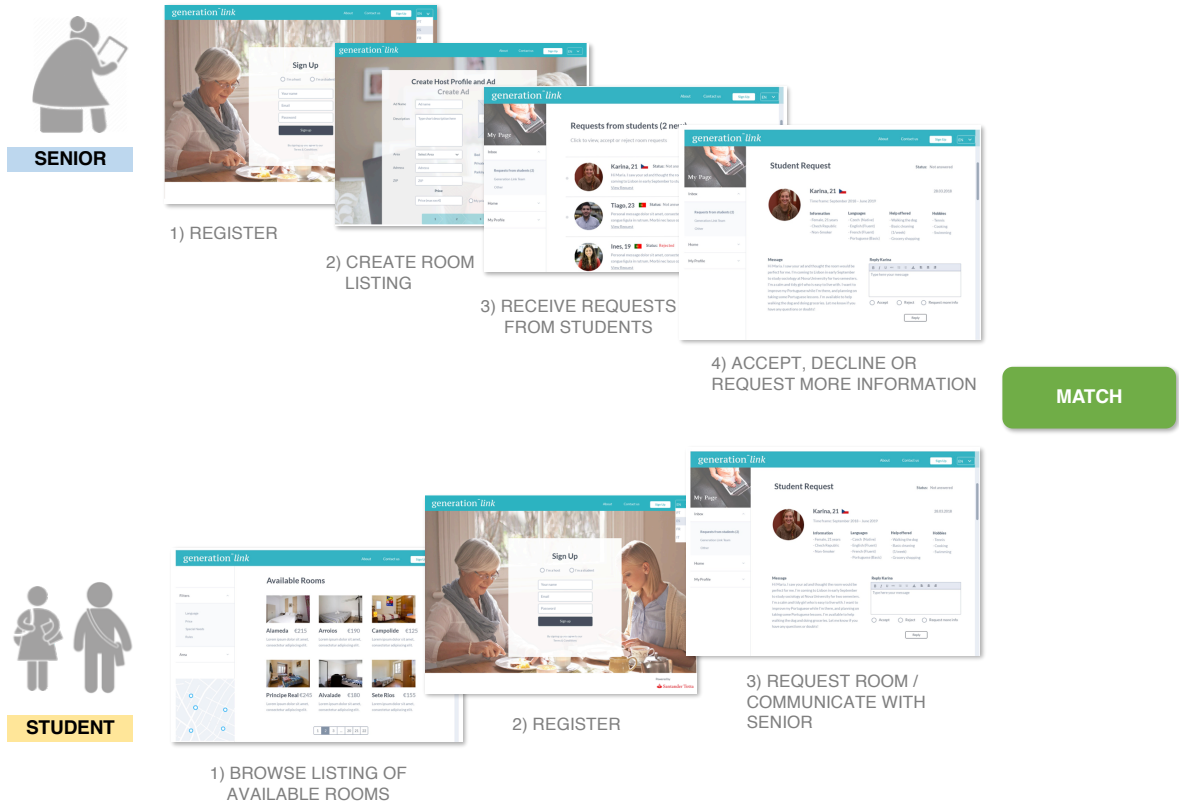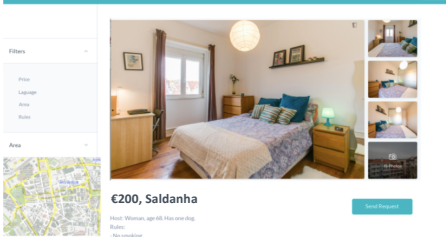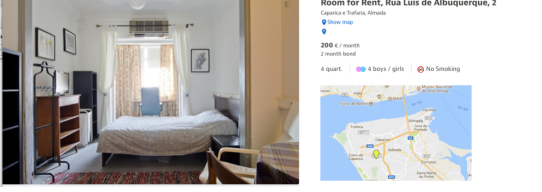
Source: Team own analysis

Appendix 18: Student Landing Page
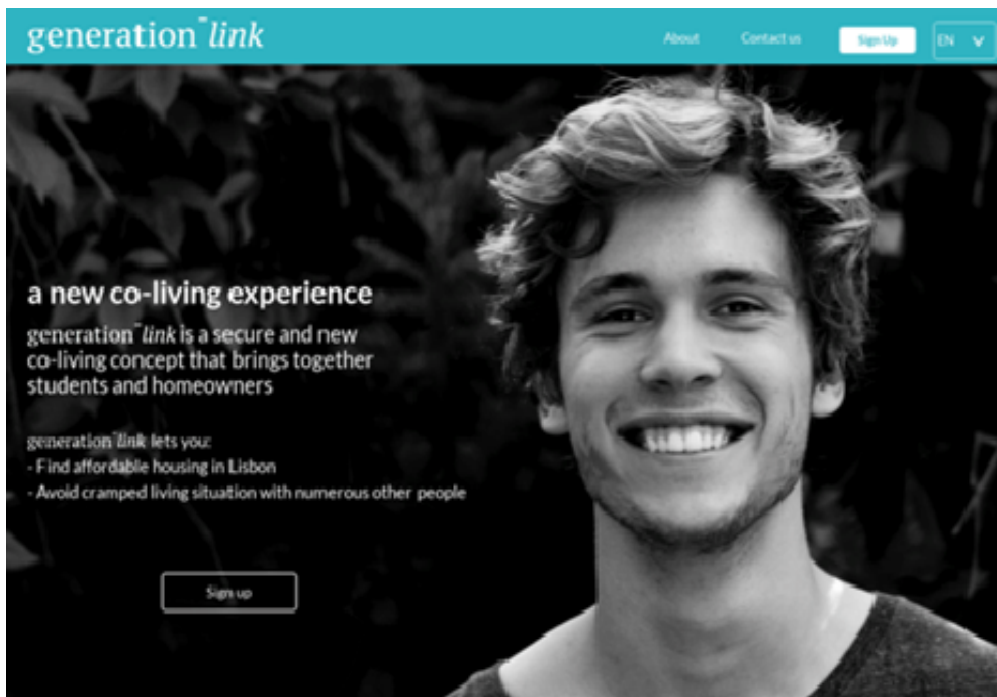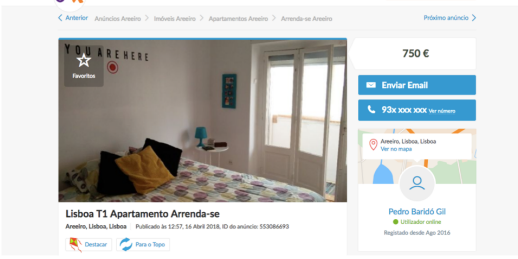

Source: Team own analysis

Appendix 19: Options Test

Source: Team own analysis

Appendix 20: Description of Options Test

	Location	Price	Number of Flatmates
Option 1 - Uniplaces	Good (Arroios)	Fair (340€)	5 Flatmates / 2 Bathroom
Option 2 – Generation Link	Good (Saldanha)	Good (200€)	1 Senior Flatmate
Option 3 - Idealista	Bad (Almada)	Good (200€)	3 Flatmates / 1 Bathroom
Option 4 - OLX	Good (Areeiro)	Bad (750€)	0 Flatmates – Studio Apartment

Source: Team Own Analysis

Appendix 21: Results of Options Test

Gender	University	Option chosen in 1st place	Option chosen in 2nd place	Option chosen in 3rd place	Option chosen in 4th place
Male	Nova SBE	2	1	3	4
Male	Nova SBE	2	1	3	4
Female	Law	1	2	4	3
Male	Law	2	1	4	3
Male	Nova SBE	1	3	4	2
Male	Nova SBE	1	3	4	2
Male	Nova SBE	2	1	3	4
Female	Nova IMS	2	1	3	4
Male	IST	2	1	3	4
Female	IST	1	2	3	4
Female	Nova SBE	2	1	3	4
Female	Law	1	2	3	4

Source: Team own analysis

Appendix 22: Landing Page Shown to Seniors (www.genlinkpt.com)
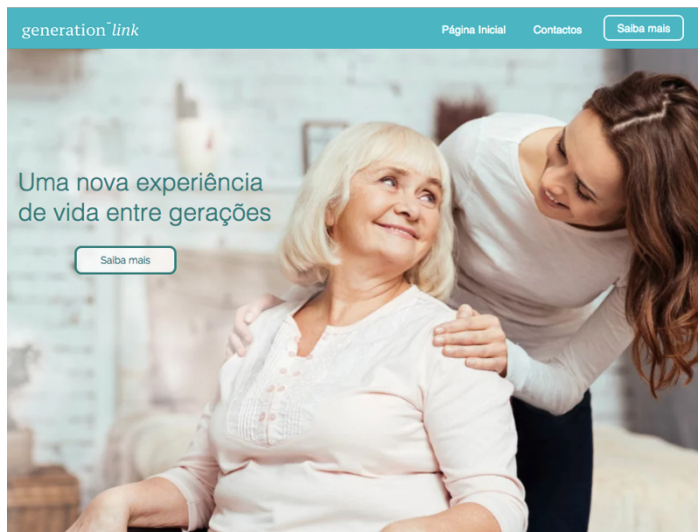
Source: Team own analysis

Appendix 23: Leaflets

Source: Team own analysis

Appendix 24: Facebook Ads

Source: Team own analysis

Appendix 25: Results Facebook Campaigns

Campaign	Status	Clicks	Reach	Impressions	Frequency	Cost Per Click (EUR)	Total Cost (EUR)	Campaign ended
Genlink1	completed	78	5014	18402	3,670124	0,16	12,62	2018-04-26
Genlink2	completed	69	4527	24967	5,515131	0,22	15,04	2018-05-03

Source: Team own analysis

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