

MESG
MESTRADO EM ENGENHARIA
DE SERVIÇOS E GESTÃO

**Redesigning Digital Public Services: a proposal to bring them
closer to Young Citizens**

Vasco Pacheco Costa Alves

Master Thesis

Supervisor at FEUP: Professor Lia Patrício, PhD

Supervisor at Fraunhofer AICOS Portugal: Cristiana Braga, MSc



2020-07-06

To my family

Abstract

The structure of society is changing, where a large part of it is being occupied by a new generation of young citizens, who are digital natives and who are used to new ways of communicating and interacting with services. Furthermore, public organizations are using digital technologies to support and provide digital public services, with the emergence of new forms of interacting between Government and citizens. Although everything seemed to be going in the right direction, it was previously found that there was a lack of adoption of the digital public services by younger citizens. Thus, it is important to understand if these online services fail to meet the needs of these citizens, or if they do meet them but are not being effectively communicated to reach the target audience. It is also important to understand if there are other factors that can be affecting this adoption. To address this problem, this study aimed to answer the following questions: *i)* why young citizens are not using the digital public services and what are the drivers and inhibitors of the use of digital public services by young citizens; and *ii)* how these services can be designed for young citizens.

This study followed two main phases, the first one was a qualitative exploratory research involving young citizens, which provided information about the topic of the interaction between young citizens and public services, following the principles of a Thematic analysis with tenets of Grounded theory. The second phase, which also involved a qualitative approach, was the beginning of the ideation stage of a service design process, where possible solutions for the previously identified public services problems were explored in an online co-design session with young citizens.

While it was found that young citizens have already some interaction with digital public services, some did not have that much experience yet, due to the lack of need of taking care of issues related with public services, caused, for example, by the stage of life in which they are. Moreover, although digital services have been chosen by the majority of the participants as the preferred channel, younger citizens, who have a stronger preference for online adoption, do not seek only online channels. During the study it was possible to identify several advantages and drivers of the use of the digital services, but at the same time problems associated with them. Other inhibitors, lack of awareness of some platforms of digital public service, as well as advantages of face-to-face services were also identified. Finally, it was possible to elaborate a cluster of recommendations for redesign in intervention areas such as: Public Administration initiatives; communication and advertising; authentication; organization and visibility of the digital public services; organization of online processes; and uncertainty caused by the digital public services.

Resumo

A estrutura da sociedade está a mudar, estando uma grande parte a ser ocupada por uma nova geração de jovens cidadãos, caracterizados por serem nativos digitais e por estarem habituados a novas formas de comunicar e interagir com os serviços. Além disso, as organizações públicas estão a utilizar as tecnologias digitais para apoiar e fornecer serviços públicos digitais, com a emergência de novas formas de interacção entre o Governo e os cidadãos. No entanto, apesar destas iniciativas, estudos anteriores verificaram uma fraca adopção dos serviços públicos digitais pelos cidadãos mais jovens. Assim, é importante perceber se estes serviços online não satisfazem as necessidades deste segmento de cidadãos, se satisfazem mas não estão a ser eficazmente comunicados para atingir o público-alvo ou se existem outros factores que podem estar a afectar esta adopção. Para abordar este problema, este estudo procurou responder às seguintes questões: *i)* porque é que os os jovens cidadãos não utilizam os serviços públicos digitais e quais são os impulsionadores e inibidores da utilização dos serviços públicos digitais pelos jovens cidadãos; e *ii)* de que forma estes serviços podem ser desenhados para eles.

Este estudo seguiu duas fases principais, a primeira foi uma investigação exploratória qualitativa dirigida a jovens cidadãos, que forneceu informações sobre o tema da interacção entre estes jovens e os serviços públicos, seguindo os princípios de uma análise temática com directrizes da *Grounded Theory*. A segunda fase, que também teve análise qualitativa, foi o início de uma etapa de ideação de um processo de desenho de serviços, onde foram exploradas, numa sessão online de co-design com jovens cidadãos, possíveis soluções para os problemas previamente identificados nos serviços públicos.

Embora se tenha verificado que os jovens cidadãos já tiveram alguma interacção com os serviços públicos digitais, observou-se que alguns ainda não tinham muita experiência na utilização destes serviços, devido à falta de necessidade de tratar de questões relacionadas com os serviços públicos, causada, por exemplo, pela fase da vida em que se encontram. Além disso, apesar dos serviços digitais terem sido os escolhidos pela maioria dos participantes como o canal preferido, cidadãos mais jovens, que têm uma preferência mais forte pela adopção online, não querem apenas canais online. Durante o estudo foi possível identificar várias vantagens e impulsionadores da utilização dos serviços digitais, mas, ao mesmo tempo, foram identificados problemas associados aos mesmos, outros inibidores, falta de conhecimento de algumas plataformas de serviços público digitais e, ainda, vantagens dos serviços presenciais. Finalmente, foi possível elaborar um conjunto de recomendações de redesenho em áreas de intervenção como: iniciativa da Administração Pública; comunicação e publicidade, autenticação; organização e visibilidade dos serviços públicos digitais; organização de processos online; e incerteza de resolução de situações causada pelos serviços públicos digitais.

Acknowledgments

I would like to start by thanking my supervisor from the Faculty of Engineering, Professor Lia Patrício, for all the crucial recommendations and interest shown throughout project.

To Cristiana Braga, my supervisor at Fraunhofer, I would like to thank her for all the dedication in helping me and the advices given over these months. Even with the different circumstances in which the project was developed, had a crucial role in the daily guidance with an outstanding willingness to help whenever needed.

I would also like to thank Jorge Lagarto, from LabX, who accompanied the project in an exceptional way, contributing with very important insights and all his experience.

This project also had the support of the Innovation Grant by AMA/ Fraunhofer Portugal AICOS, for which I thank both organisations the opportunity it provided me to learn and to collaborate in this team.

The results of the project would not exist without the collaboration of all participants to whom I also owe a thank you.

To my friends who were with me during this, the previous ones and will be in the future journeys, I thank you for all the memories and good moments.

Finally, I would like to thank to my family, especially my parents and my sister, to whom I am most grateful. Thank you for the support and patience, you represent my biggest source of guidance.

Table of Contents

1	Introduction	1
1.1	Project Background	1
1.2	Problem Description	2
1.3	Research Questions	4
1.4	Study and Project Development at Fraunhofer AICOS	4
1.5	Report Outline.....	4
2	Literature Review.....	5
2.1	Public Services	5
2.1.1	Relation between citizens and public services	5
2.1.2	Digitalization of public services.....	6
2.1.3	Adoption of digital public services.....	8
2.2	Young Citizens.....	9
2.2.1	Generation Z.....	11
2.3	Service Design.....	13
2.3.1	Methods in service design	13
2.3.2	Service design for public services	15
3	Methodology	16
3.1	Method Used in the Project	16
3.2	Sample Design	17
3.3	Data Collection	17
3.4	Data Analysis.....	19
4	Results.....	20
4.1	Understanding AMA's Perspective	20
4.2	Understanding Young Citizens' Perspective.....	21
4.2.1	Identifying life events and public services used by young citizens	21
4.2.2	Customer journey of young citizens with public services.....	23
4.2.2.1	Pre-service phase	25
4.2.2.2	Digital services phase	29
4.2.2.3	Face-to-face services phase	36
4.2.2.4	After service phase.....	38
5	Generating Possible Solutions for Public Services.....	39
5.1	Co-designed Solutions for the Pre-service	40
5.2	Co-designed Solutions for the Digital Services.....	41
5.3	Recommendations for the Public Services	43
6	Conclusion and Future Research	47
	References	49
APPENDIX A:	Study participants.....	53
APPENDIX B:	Services available in ePortugal interesting for young citizens.....	54
APPENDIX C:	Script for AMA representatives' interviews	57
APPENDIX D:	Informed consents.....	58

APPENDIX E:	Script for young citizens interviews	60
APPENDIX F:	Simplified version of the customer journey	61
APPENDIX G:	Plan of the co-design session.....	63
APPENDIX H:	Questionnaire script.....	67
APPENDIX I:	NVivo screenshot	69
APPENDIX J:	Co-design session for pre-service phase	70
APPENDIX K:	Co-design session for digital services phases.....	71

List of Tables

TABLE 1. TRADITIONAL PUBLIC ENCOUNTER VS DIGITAL PUBLIC ENCOUNTER..... 7

TABLE 2. RECOMMENDATIONS TO DELIVER SERVICES TO YOUNG CITIZENS..... 11

TABLE 3. LIFE EVENTS WHERE YOUNG CITIZENS INTERACTED WITH PUBLIC SERVICES 21

TABLE 4. ENTITIES AND SERVICES USED BY YOUNG CITIZENS 22

TABLE 5. DIGITAL SERVICES ADVANTAGES AND PROBLEMS 31

TABLE 6. INFORMATION PROBLEMS AND SUGGESTIONS 33

TABLE 7. LANGUAGE PROBLEMS AND SUGGESTIONS..... 34

TABLE 8. FACE-TO-FACE SERVICES ADVANTAGES AND PROBLEMS..... 36

TABLE 9. RECOMMENDATIONS FOR THE PRE-SERVICE 43

TABLE 10. RECOMMENDATIONS FOR THE DIGITAL SERVICES 44

List of Figures

FIGURE 1. ePORTUGAL HOMEPAGE	3
FIGURE 2. DEMOGRAPHIC DATA OF YOUNG CITIZENS PARTICIPANTS	17
FIGURE 3. USE OF THE PUBLIC SERVICES BY YOUNG CITIZENS	23
FIGURE 4. OVERVIEW OF THE CUSTOMER JOURNEY.....	24
FIGURE 5. PRE-SERVICE FOCUS OF THE CUSTOMER JOURNEY	26
FIGURE 6. DIGITAL SERVICES FOCUS OF THE CUSTOMER JOURNEY	30
FIGURE 7. FACE-TO-FACE SERVICES FOCUS OF THE CUSTOMER JOURNEY	37
FIGURE 8. AFTER SERVICE FOCUS OF THE CUSTOMER JOURNEY	38

List of abbreviations

AMA – Administrative Modernization Agency, IP

LabX – Experimentation Lab for Public Administration

UX – User Experience

FAQ – Frequent asked questions

1 Introduction

The project's object of study is the phase of life in which young people reach the age of majority, in the context of their relationship with public services, which has been identified by AMA - Administrative Modernization Agency, IP - as complex and challenging.

In this regard, the project represented a moment of opportunity to improve the relationship of this segment of citizens with the Government, namely by promoting the use of existing digital public services.

Thus, this study carried out an exploratory investigation of the life events in which young people need to interact with the public services, the current flows of these contacts and the motivations inherent to the choices of the channels through which these interactions are carried out. Subsequently, it was explored how the public services, mainly digital, could be better designed for the needs of the young citizens.

1.1 Project Background

In today's societies change happens fast, and consequently new needs are emerging in the supply and demand of public services, leading to a change from a bureaucratic and closed management to a more open, diversified, participatory and simplified one (Tomé & Teixeira, 2014).

Citizens can be the ones responsible for the emergence of new needs and, at the same time, they are the ones that can give important inputs for public services, like knowledge, ideas and individual/collective sentiments, which increases the importance of involving them in the development of the public services (Simmons *et al.*, 2011), together with the knowledge of other stakeholders that may have their own perspective on the issues (Simmons & Brennan, 2017).

The public encounter (interaction between citizens and public officials) can assume almost infinite varieties of forms (Goodsell, 1981) and public organization across the world are using digital technologies to support it (Lindgren *et al.*, 2019), by putting effort to improve e-government and to provide public services online (U.Nations, 2018a). According to Wihlborg *et al.* (2017), it is hoped that e-government, that "means to electronically deliver Government services to citizens and businesses" (Klier *et al.*, 2015, p. 2), will bring benefits like efficiency, democratization, participation of citizens, and convenience (Lindgren *et al.*, 2019). However, it can also happen that digitalization excludes citizens and rise new barriers. Therefore, the rapid technological development, the change towards the automatization and the digital self-services, highlights the importance of understanding how the digitalization of public services impacts on the interaction between the public entities and citizens (Lindgren *et al.*, 2019).

Although the trend is to digitalize, when developing the online solutions it is necessary to understand that in order for citizens to adopt them, they first need to be aware of their existence and then, they need to see more benefits of doing it online, when compared with the traditional means (Carter *et al.*, 2016).

Finally, the configuration of society is changing, where a growing segment of the population will be taken by the younger generation (Sabaitytė & Davidavičius, 2017), and even where there are cases that the digitalization excludes citizens, this should not be the case for the

younger citizens, that according to Singh (2014), represent the “digital natives”, born into technology rather than being accustomed to it (Berkup, 2014), feeling good in the technological world and preferring to socialize digitally (Bencsik *et al.*, 2016). Furthermore, with the online world, a set of expectations were created to the citizens that want to interact with public services in new ways (Davies, 2013). Wherefore, the public sector need to pay attention to the needs of the individuals of the different society’s groups, and especially the characteristics of the youngest, in order to predict behaviours in a virtual environment and adapt appropriate solutions (Sabaitytė & Davidavičius, 2017).

1.2 Problem Description

Portugal continues to modernize public services with the help of digital technologies and is one of the best performers in the European Union in this regard, making progress over the last years with an above-average overall score in this area (ranked 9th out of 28 members states in the dimension on digital public services of DESI)¹. However, the relatively large share of the Portuguese population who does not use the internet or only seldom do so is, by definition, unlikely to benefit from the country's digital public services (European.C, 2019). Portugal is placed in the 29th position in the E-Government Development Index (U.Nations, 2018b), that measures, in a total of 193 countries, the countries’ use of information and communication technologies to deliver public services, capturing the scope and quality of online services, the status of telecommunication infrastructure and the existing human capacity (U.Nations, 2018a). Additionally, Portugal is ranked 14th in the European Union considering the number of e-government users (European.C, 2019).

Nowadays in Portugal we can find different online public service platforms, such as, the Direct Social Security, the Finance Portal, the Institute of Registers and Notary website and the Institute for Employment and Vocational Training online. In addition, since February 2019, we can also find the public services portal, ePortugal (Figure 1), that is an intuitive and inclusive platform, with the goal to be more user-friendly, accessible, interactive and personal, that was the result of the constant search to facilitate the relationship between citizens, companies and the Public Administration. Being optimized for the use through any device (computer, smartphone or tablet), it provides access to services and information (with more than 1000 services available), being organized by life events, and adopting a simpler and clearer language. Furthermore, this platform can be personalized, allowing the change of menus and colours, to make the navigation experience friendlier and more adjusted to the needs and preferences of each user. Finally, it also have functionalities that allow a better response to the citizens that need help, like the virtual assistant Sigma, a chat bot that allows the quick clarification of doubts, serving as navigation support (AMA, 2016; ePortugal, 2020; R.Portuguesa, 2019).

¹ Digital Economy and Society Index 2019 – Monitors the digital competitiveness of EU members



Figure 1. ePortugal homepage

Chave móvel digital (Digital Mobile Key) is a mean of authentication that allows the association of a civil identification number and a mobile phone number for Portuguese citizens and the passport number or residential title for a foreign citizen. This authentication method can be used to access, with a single log in (instead of having for each service platform a number and a code), to several digital public services, such as ePortugal, Direct Social Security, Finance Portal, Institute of Registers and Notary, Online Criminal Register and Caixa Geral de Depósitos (Portuguese Bank), in a simple and fast way. Lastly, it provides to the citizens a solution to safely digitally sign Pdf documents through the application Autenticação.Gov or website. (Autenticação.gov, 2020).

The *Ponto Já network* is a set of public spaces created by IPDJ² for young people, aiming to help young citizens finding information and services that may be of interest to them. This network is distributed across 56 places in mainland Portugal, and some of its objectives are: to promote and spread the national and international information to youth; creation of partnerships that enhance the service delivery and dynamization, to promote and develop the values of citizenship; to promote opportunities and activities for the youth; as well as to promote the integration, collaboration and youth counselling (IPDJ, nd).

Despite the Portuguese Public Administration's effort to keep up the society evolution in the digital environment, by providing digital public services and an easier and more universal mean of authentication. The time when young citizens reach the legal age has been identified by AMA as a time of complex challenges to public services concerning the interactions and their adoption of digital public services. The lack of adoption of young people was identified as a result of two projects performed by AMA at the Citizen's Shops and at the Tax Authority. It was also understood that there is a general lack of knowledge about public services, not only regarding the obligatory ones (like taxes and social security) but also about other services that can be performed in the context of the beginning of professional activity (like ask for criminal record and opening of working activity) or of their own personal life (like European Health Card and digital mobile key). This lack of adoption can also be seen in the access to the ePortugal platform, where the segment of the citizens with ages between 18 and 24 has the lowest access

² Portuguese Institute for Sports and Youth

rate (11,33%) after the over 65s segment (10,05%) (ePortugal Google analytics – from 2nd January until 9th of march).

Having young citizens, that are digital natives, going to face-to-face services when there are digital alternatives does not make sense. The lack of adoption of digital services by the young citizens leads to greater pressure on the face-to-face services. Moreover, it is important to understand if these online services do not meet the needs of this citizens segment, if they meet but they are not being effectively communicated to reach the target audience or if there are other factors that can be affecting this adoption. Thus, the ultimate goal of this study is providing services that are better suited to the needs and motivations of young citizens, without hiding the fact that it is important to remove the pressure that currently exists on face-to-face services.

1.3 Research Questions

Since this study aimed to approximate and promote greater adoption of the digital public services by the young citizens, the work started with understanding the drivers and inhibitors, but mainly the inhibitors, of the use of digital public services by young citizens and then explored how these types of services can be better designed for this citizens' segment.

Thus, the study aimed to answer the following research questions:

- Why are young citizens not using the digital public services and what are the drivers and inhibitors of the use of digital public services by them?
- How can public services, mainly digital services be designed for young citizens?

1.4 Study and Project Development at Fraunhofer AICOS

This study was developed in the Human Centred Design team at Fraunhofer Centre for Assistive Information and Communication Solutions (AICOS), that is an applied research centre operated by Fraunhofer Portugal, and in a partnership with the Experimentation Lab for Public Administration (LabX), a team of AMA.

1.5 Report Outline

The report is organized as follows: the first section presented the context of the project and the description of the problem; the second section is dedicated to the literature review on the topics of the relation between citizens and public services, the digitalization of the public services and their adoption, young citizens and the generation studied, as well as service design; the third section presents the methodology used in this study, including the choice of the method, sample design, data collection and data analysis; the fourth section presents the results of the study based on the participants' testimonies; the fifth section presents the generated ideas in the co-design session, as well as a cluster of recommendations for redesigning public services, mainly digital; finally, in the sixth section we present the conclusions, the answers for the research questions, and the future work is identified.

2 Literature Review

This chapter reviews the literature on the knowledge about public services and young citizens. In the public services topic, it was mainly explored the relation between citizens and public services, in order to better understand how citizens and public services are affected by each other, the digitalization of public services, that helped to understand the changes in the public encounter, and the adoption of digital public services, that provided information about aspects that should be considered for a better adoption of these services by citizens. On the topic of young citizens, we explored their role in the society, the generation Z as well as their characteristics, and collected some recommendations on how to adapt services for young citizens. Additionally, the service design topic was also addressed, due to their relevance in the development of services.

2.1 Public Services

Public service is a “service provided by the Government”, “something that is done or provided for the public because it is needed, and not in order to make profit” (Cambridge, 2020). It can be also defined as “the work that elected officials and Government employees do for the benefit of the public” (Cambridge, 2020) or “set of activities and tasks aimed to satisfy the population need (Santos, 2019).

One of the objectives of the Government is to deliver public services to their citizens and in order to deliver these services, cross-organizational businesses processes, transactions and resources need to be used (Araujo *et al.*, 2013).

For this study, we consider public services such as renewing the citizen's card, obtaining the driving licence document, applying for the European health card, opening up work activity in the finances, going to the health centre, among others.

2.1.1 Relation between citizens and public services

Citizens act according to special life events or their personal demands (Anthopoulos *et al.*, 2007) and have a relatively solid attachment to the public services they resort to, giving importance to the way they are being done and what they consider acceptable (Simmons & Brennan, 2017). Nevertheless, the trend is that different public services have different roles in the life of the users, some tend to be more central than others. A service that for an user is only occasionally, or short-term, tend to be considered less important than for an on-going and long-term user (Simmons *et al.*, 2011). For example, it is normal that a citizen who needs to issue work receipts every month gives more importance to the public services compared to a citizen that only issue a single act of working per year. Furthermore, the citizen’s engagement, involvement and the way he wants to interact with the services can be affected by the type of service, for example if it is more information based or counselling based (Klier *et al.*, 2015).

In the last years we are facing an increase in citizens engagement in designing public services and due to the intensification of their inclusion into the decision-making process (giving them a more central role), public services are more influenced by the uses and the needs presented

by individuals who are affected by them. We are experiencing this change because we are facing an increase in the openness and collaboration between both actors (citizens and institutions) and the amount of public services and information that is delivered online is growing (Opromolla *et al.*, 2017).

Giving voice to the citizens enables the exploration of important inputs for public services, like knowledges, ideas and individual/collective sentiments. So, if it is considered that the user interests should be taken into account, it is important to have procedures of involvement and representation (voice). This voice, does not just have to be about important complaints, but to be focused on developmental aspects regarding the service provider (Simmons *et al.*, 2011). According to Osborne *et al.* (2013), in order to use the potential of this user voice and complains, potentiating the innovation of the public services, it is important to incorporate citizens engagement and involvement in all the phases of a public service lifecycle and connect it with the knowledge of other stakeholders, that may have their own perspective on the issues (Simmons & Brennan, 2017).

Although it is understood the importance for listening to citizens, there is the challenge of how to help them to provide opinions and proposals for service improvements in a more structured way (Araujo *et al.*, 2013). Usually, this process is made through frontline member of staff, what service providers believe that tends to go unrecorded. Thus, there is the need to make available, as well as leave open, a full range of mechanisms for citizens to express their views, also because not everybody feels good expressing themselves in the same way (Simmons *et al.*, 2011).

Nowadays there are more channels of communication between Government and citizens. Moreover, with the digital technologies citizens can now have access to information pretty much everywhere, opening an window for Governments to reach and interact with individual citizens (Krøtel, 2019). People are intensively using Information and Communication Technologies in their social life, which leads to a need of interacting with the Government using similar tools (Karakiza, 2015). According to Abdellatif *et al.* (2013), Governments are interacting more with citizens through social media, and using these platforms to better understand their needs, so they can offer adequate services. This perspective goes along with what Araujo *et al.* (2013) said about social media being good to obtain citizens opinions about a service. Additionally, Governments could also integrate the social media channels in their personalization tools of services, giving them the opportunity to use these interfaces as a source of information in order to identify the services that could be interesting for the target citizen (Abdellatif *et al.*, 2013). Finally, with the implementation of e-government the interaction of citizens with Governments can be improved (Reddick, 2005).

2.1.2 Digitalization of public services

Digital technologies can create improvements in the quality of life for citizens in the society (Lindgren *et al.*, 2019), and through e-government, it is possible to increase efficiency, inclusion and participation of citizens in the digital age (Wihlborg *et al.*, 2017). Digital public services can be developed to facilitate the citizens' lives by making them more convenient (Lindgren *et al.*, 2019) and by using their flexibility it is possible to help the adaption to personal needs (Wihlborg *et al.*, 2017).

According to Lindgren *et al.* (2019), communication forms changed, and digitalization created new, as well as some innovative forms and sets for public encounters (interaction between citizens and public officials), being the support of these encounters the objective of digital public services. Delivering the services digitally can change the public encounter concerning the dimensions of when, where and how the interactions occur, the function of each participant and the skills needed. In Table 1, we present a comparison between the traditional public encounter and the digital public encounter, concerning the aspects of: the nature and purpose of the encounter; communication form and setting; the central actor involved; and how normally it is initiated, the duration and scope.

Table 1. Traditional public encounter vs digital public encounter

Aspect	Traditional public encounter	Digital public encounter
<i>Nature and purpose of the encounter</i>	Exchange of information	Exchange of information
	Service provision	Service provision
	Control or constraint	Control or constraint
		----- Changes: digitalization facilitates the automatic exchange of information and citizen self-service
<i>Communication form and setting</i>	Letter, telephone call, office visit	Digital channels (websites, email, video, social media, chat, mobile apps, etc.)
	Citizens' home, Government office or institutional building	Anywhere with internet access
		----- Change: more communication channels; the place can be almost anywhere but especially citizens' home
<i>Central actor involved</i>	Public official and citizen	Self-service for citizen downplays the role of the public official. Providers and designers of technology are influent actors
		----- Change: changed the roles of the actors and added new actors that are related with the technology that affects the interaction
<i>Initiation, duration and scope</i>	Can be initiated by both actors	Although it can be initiated by both actors, is typically by the citizen.
	Normally restricted to office hours	Furthermore, the initiation may be automated without involvement of humans
	Can differ in frequency and impact on citizen's life	Can differ in frequency and impact on citizen's life
		----- Change: enables 24/7 access to Government services, changes the expectation of Government response time and enables proactive services (initiation performed by technology)

Adapted from Lindgren *et al.* (2019)

Focusing now on the development and provision of a digital solution by Governments, there are some aspects that should be taken into account. First when implementing digital governance it is relevant to give importance to digital inclusion (Evans & Gomes, 2017). Second, the solution developed must include a set of recommended services for the users (most e-Government projects group public services according to life events (Anthopoulos *et al.*, 2007)), let the user to search for a specific service and allow him to give feedback. In this way, along with an easy to use interface, there is a boost in user loyalty and satisfaction, as well as potentiating a better understanding of user needs, allowing the personalization with regard to the profile of the user (Abdellatif *et al.*, 2013). In addition, despite the importance of developing e-services to fulfil existing needs, they need to be a supplement of the online offerings, and we cannot forget that distinct offers should be designed for distinct users and types of services (Klier *et al.*, 2015). Lastly, it is necessary to understand that there are also some risks not yet properly analysed, created by the aspiration of rapidly improve matters in public organizations through the use of technology, like for example: the type of control; constraint over citizens behaviour; the amount of citizens' data generated and analysed (that can lead to problems of integrity and privacy); and how the change in the settings affects the perception of the Government by the service users (Lindgren *et al.*, 2019).

In order to guarantee that citizens understand the value and the advantages of digital public services, Governments should focus their energies on projects that add value to the society when comparing with the traditional methods. Factors such as speed, efficiency and effectiveness of the e-service should be considered, both for process improvement and cost saving perspective of the Government and for the convenience perspective of the citizen (Carter *et al.*, 2016).

2.1.3 Adoption of digital public services

Relatively to the adoption of e-governments, citizens that see usefulness in this channel are more likely to adopt them. So, by providing more benefits digitally, when compared to traditional means, the technology advancement provided by e-government will be diffused through society. However, before the citizens being able to appreciate the relative advantages of e-government, they need to be aware of the different electronic options (Carter *et al.*, 2016). Then, in case citizens find that they have enough technological and psychological capability to use it, and perceive their advantages, they will probably adopt the digital alternatives (Shareef *et al.*, 2011). Thus, to increase this knowledge among citizens, the Governments should implement a national e-government awareness initiative that emphasizes the services that are available and their benefits (Carter *et al.*, 2016). Furthermore, since using the internet to interact with public authorities in service production relies on the capacity of citizens to navigate and understand the complex information in the interactive channels (Evans & Gomes, 2017), and since citizens perceived their technological and psychological ability as one of the most important factors acceptance of e-government, the Government should enhance citizens' technological and psychological ability to use them. Additionally, these services need to be flexible, easy to navigate and fully available, where at same time tips about the usage of the technological interfaces should be given to citizens (Shareef *et al.*, 2011). According to the same authors, security is also important to develop trust, so there should be a balance between the complexity of the security and the user-friendliness of the platform. Moreover, for general adoption of e-government, better information quality encourages citizens to use the online systems and if the providers of these services develop a system in a way that potentiates the

usability, they do not need to pay as much attention to delivering regular customer service. Finally, depending on service patterns, Governments need to understand the different citizens' requirements and needs.

To complement these points, there are other recommendations that could be considered, namely: providing online tutorials - guidelines and illustrations on how to search or transact with that website - (Carter & Bélanger, 2005); and delivering information on how to use the service, that could be a brochure, or a help feature (Susanto & Goodwin, 2013). Likewise, in order to improve the perception of trustworthiness, it should be included, in an easily visible way, the privacy statements, and lastly, the feedback from the citizens should be collected and analysed, enabling the redesign of websites to present information and services in a style that is easy for citizens to use (Carter & Bélanger, 2005). Finally, it is important to remove the barriers, even that they could be small, that prevent public employees from engaging successfully online (Davies, 2013).

By considering all previous aspects, it enhances the creation of a more positive experience, which can be translated in citizens being more likely to use the service (and others similar), and it increases the chance that they share their experience with others, encouraging the adoption of the digital service, contrary to what happens if the experience is bad (Carter & Bélanger, 2005).

2.2 Young Citizens

After reaching the age of majority, eighteen years old in most countries, young citizens get access and rights get activated in several public entities (Harris, 2016). The question of the young individuals as part of a society, and as citizen, is important because it can have influence in the way they are viewed and treated, in how services are developed and even how this segment feel about their importance in the society (Smith *et al.*, 2005). However, there are still areas of public services and democracy that discriminate in terms of age (Davies, 2013). Generally, public institutions are not designed based on the younger citizens interests and how to engage them, mainly because they are designed by adults to serve adults (Harris, 2016). Moreover, society see young people only as future citizens, or as suggested by Smith *et al.* (2005), the not-good-enough citizens and citizens of tomorrow, what can contribute to the reduction of chances of an active participation in public institutions (Dias Fonseca, 2019).

Digital generations are spending their time connected to online entertainment and to each other in social media, but at same time disconnected from local communities and public services (Davies, 2013), tending to participate and share civic content on online networks and not frequently participating in more formal and structured actions (Dias Fonseca, 2019). The online world brought a set of expectations to the citizens that want to interact with public services in new ways. These expectations are partially created by the interactive possibilities and participative culture of modern communication technologies (Davies, 2013).

According to Davies (2013), there is a gap between the way that several citizens want to interact with the Government and the way that communication with public services is actually being made. This gap can be understood in two different ways: as a channel gap, which means that the Government is not communicating through the right channel, emphasizing the need for the Government to be where citizens are; and the second way to look at this gap, that is far harder

to bridge, is the expectations gap created by the modern communication technologies. The expectations that Davies (2013) consider are:

- the expectation of open information: expectation that all content should be available very easily. In a world where citizens can access and manage their personal data, there is the problem of not having direct access to the personal details that public services hold on you;
- the expectation of comment: people are more likely to trust on the comments about a service of other consumers, than what the company, or Government, are saying. Enhancing the importance of “like” buttons, or other system to leave your opinion and share it in social networks;
- the expectation of interactivity: it is expected that if you leave a comment about a company, they will replay to it (responsiveness), contrary to the slow responses when contacting public consultation;
- the expectation of collaboration: in a time where collaboration can be made together instantly it creates the expectation that citizens participate in policy process by entering in online discussions rather than filling consultation forms.

Although many of the innovations purposed by young citizens have a technological component, it is suggested, that the target should be seeking for minor changes to accommodate members of this new segment within public services structures, instead of challenging us all to change the way public services are being practiced (Davies, 2013). Furthermore, despite the younger and better educated citizens have the tendency to have a stronger online adoption preference compared to older or less educated ones, they do not want only online channels for all the services. While being important the development of e-services to fulfil existing needs, they need to be a supplement of the offline offerings. (Klier *et al.*, 2015).

A study resulted from the project “DesYIGn - Innovative Youth Information design and outreach”, that aimed to expand the reach of youth information and counselling services to a maximum number of young people across Europe, defend that it is clear that young people from the current digital age search for information in a different way from those who were born in pre-internet and social media age. When young people want to search for information, they first make a Google search and then check more legitimate sources, prefer to consume information through images and videos (YouTube as a critical information source) rather than texts, suffer from information overload when looking for precise information to make decisions and look for a cognitive authority (a source of information and advice that they believe is trustworthy and reliable). Finally, DesYIGn study also concluded that to increase the awareness of young people, the services must stay significant to their lives, produce content on the media they use and disseminate it on the right channels, being an interactive webpage and mobile application a potential effective solution for this segment (Karim, 2019). Although this study is for a specific service, they present a set of recommendations which we believe that some, presented in Table 2, may be transversal to other services.

Table 2. Recommendations to deliver services to young citizens

Area	Recommendations
<i>Awareness</i>	<ul style="list-style-type: none"> • Promotional videos could be disseminated on relevant platforms, like for example social media • Content should be available at appropriate touch points (be where they are) • Online presence on social media platforms such as Facebook, Instagram, and YouTube is needed • More images and audio-visual content over text-based content • Think how to reach young people living outside urban areas, in small towns, villages and rural areas
<i>Access</i>	<ul style="list-style-type: none"> • Branding of the information services according to topic areas • Virtual discussion forums • Video calls • A direct helpline number • Easy and interactive website • A mobile application for accessing the service • Consultations via chat box and bots on the website and mobile application • Responsive and interactive webpages for mobile devices • Search option and categorization of information areas on website and applications • Information dissemination has to be updated and made available across different platforms
<i>Institutional collaboration</i>	<ul style="list-style-type: none"> • Affiliation with educational institutions • Youth ambassadors
<i>Engagement and activities</i>	<ul style="list-style-type: none"> • Arranging events and presence at places frequented by young people • Engaging local influencers • Involving young people in co-designing different services • Planning engagement activities according to information needs and trends

Adapted from Karim (2019)

2.2.1 Generation Z

The existence and evolution of technology has caused several changes in the 21st century, which, being experienced, create different viewpoints for people who were born in different periods of time (Berkup, 2014).

Different generations can be found in societies, and the natural trend is that a new generation will take up most of the society’s structure (Sabaitytė & Davidavičius, 2017). Generation can be defined as a “group of individuals born and living about the same time” (Williams & Page, 2011, p. 2) , that is supposed to have common characteristics and viewpoints (Berkup, 2014).

Each generation that comes to replace the older one, arrives with its own characteristics (Berkup, 2014), wherefore we should see them as different and not treat them in the same way, due to their unique expectations, experiences, values and lifestyles, (Williams & Page, 2011)

Despite all the dispute in generation definition, and since this study is focused on citizens between 18 and 25 (born between 1995 and 2002), we decided to select the generation Z as the focus, because the definition of this generation according to several authors is:

- born between 1995-2012 (Berkup, 2014; Singh, 2014);
- born between 1997-2012 (Dimock, 2019);
- born between 1995-2010 (Seemiller & Grace, 2016).

Generation Z, also known as “digital natives” (Singh, 2014), the “net generation”, the first real “global generation, or the “children of the internet”, feel good in the world of technology, being other forms of socialization, beyond digital, difficult to them (Bencsik *et al.*, 2016). During their life they will grow up in diverse environments, with highly sophisticated media and technological devices surrounding them, they will experience big technological advancements and have access to resources that the previous generations did not have (Singh, 2014).

More than having high technological know-how (Singh, 2014), the members of this generation are used to high-tech, to multiple information sources and to receiving messages from all sides (Williams & Page, 2011), being globally connected, tolerant to diversity, being active, motivated, goal oriented, competent, researchers, decision makers, adventurous, enthusiasts to perform difficult tasks (Singh, 2014), addicted to technology (Berkup, 2014), as well as give value to authenticity, have the need of belonging and believe that can impact the world (Williams & Page, 2011). Furthermore, they are very aware of the social responsibilities toward society, laws, rules and regulations (Singh, 2014), want anything to happen quickly and instantly and they try to comprehend the rapidly changing world and grow up in it, believing that everything is possible (Berkup, 2014) without being afraid of continues changes (Bencsik *et al.*, 2016).

On the other hand, according to Sabaitytė and Davidavičius (2017), these individuals can be also characterized by being focused on their own needs, having lack of attention towards others, doing superficial reading, being impulsive and carelessness, having tendency toward reckless behaviour. Furthermore, despite the tendency to independence and autonomy, they can be eternal childs, reluctance to grow up and take on adult duties and responsibilities, where the comfort should be ensured by the parents.

Sabaitytė and Davidavičius (2017), present a set of guidelines of information technologies (IT) features for a more efficient compatibility with the characteristics of the generation Z, that have similarities with other guidelines present on the previous topic, such as:

- smaller amounts of information (visual information presentation or small amount of textual information);
- e-service order process must include as less steps as possible and have no complexity, thereby helping the impulsive user to quickly get the desired result;
- it must be possible to link IT solutions with the user's personal software, for example if there are activities after ordering the service, the user must be able to add them to e-calendar;

- individualization of e-services and possibility for users to view the ordered services and history of their activities;
- user support solutions must have a wide range of e-communications' options;
- if there is more than one option, the user must clearly see the characteristics of different variations and e-help function must be placed in visible location;
- estimated time of service order process.

2.3 Service Design

Services are considered complex, because they are created by things, places, systems of communication and interaction, humans and their organizations, which leads to the need of having a service-oriented design culture and practice (Meroni & Sangiorgi, 2011). With focus on design, services will adjust better to change and perform longer to the user, increasing their satisfaction and at same time resulting in a more effective employment of resources (Polaine *et al.*, 2013).

Service design can bring innovative ideas to life (Patrício & Fisk, 2013) and it can be defined as the “orchestration of clues, places, processes, and interactions that together create holistic service experiences for customers, clients, employees, business partners, or citizens” (Ostrom *et al.*, 2010, p. 17), just as it can be seen as an iterative and human-centred process (Patrício & Fisk, 2013), starting with the person, and consequently with what she wants to achieve and what she does (Holmlid & Evenson, 2008). Service design can face the challenges of growing complexity, emergence of multichannel services, customer cocreation and need of interdisciplinary methods (Patrício *et al.*, 2011),

The service design process is iterative and formed by four stages: Inspiration, Ideation, Reflection and Implementation (Patrício & Fisk, 2013). In the Inspiration stage we understand the experience of the customer and stakeholders that are going to be involved in the project. The Ideation stage (generative stage) is where the ideas for possible service solutions will be created, explored and developed, studying new services concepts. Reflection is the stage of prototyping, testing, improving and retesting the services concepts created in Ideation with the customers. Finally, Implementation is the process of preparation, applying and reviewing the changes needed to operationalize the service concept in order to offer it to clients.

2.3.1 Methods in service design

For the service design process we can follow the Multilevel Service Design (MSD) (Patrício *et al.*, 2011), that is a four step method for designing complex service systems that allows the development of the service offerings at three hierarchical levels - service concept, service system and service encounter. Being those steps, the following ones:

- *step 1 (part of Inspiration)* - study of the Customer Experience in the three different levels (value constellation experience, service experience and service encounter experience). This step is useful to better understand the desired needs and experiences, providing the basis for designing the service;

- *step 2 (part of Ideation)* - designing the Service Concept. This step starts with understanding the Value Constellation Experience and then use the Customer Value Constellation to represent the services offered by the company, links and partnerships made with other entities in the network, defining the value proposition in the broader context;
- *step 3 (part of Ideation)* - designing the Firm's Service System, that starts with understanding the Service Experience, relevant to reveal how the different encounters form the customer journey, the interfaces used and the factors that enable or not the desired experience. Two models are used, the Service System Architecture, that defines the structure of the system including interfaces, processes, actors and tasks, and the Service System Navigation that provides a more dynamic view of the system, mapping the different routes that the customer can follow across the different encounters and enabling the identification and design of the links that should be established between the different interfaces;
- *step 4 (part of Ideation)* - designing the service encounter, that begins with understanding the Service Encounter Experience followed by the use of the Service Experience Blueprint. This tool maps the actions of the different participants in a specific service touchpoint in front and backstage, the interface links as well as fail and waiting points.

We can also resort to a customer journey that is defined as “a series of touchpoints, involving all activities and events related to the delivery of the service from the customer's perspective” (Patrício *et al.*, 2011, p. 182), and that contains all relevant service phases (before, during and after) (Koos, nd). This tool can be used to understand and address customer needs and pains (Gibbons, 2017), highlighting the customer-centric character (Følstad & Kvale, 2018). Furthermore, this perspective of the customer journey helps in understanding the customer experience (Patrício *et al.*, 2011).

Additionally, we can find MINDS (Integrating Management and Interaction Design Perspectives for Service) (Grenha Teixeira *et al.*, 2017), that represents an interdisciplinary method for service design, focusing on both management perspective models, creating new value propositions, and in orchestrating multiple service interfaces, with interaction design perspective models.

In the design processes we can find moments of co-design, “the creativity of designers and people not trained in design working together in the design development process” (Sanders & Stappers, 2008, p. 6). This cooperation during the design process, can be considered very important to service design due the need of the productive combination of different perspectives to understand both the demand and supply side. It is expected, among businesses and organizations, that co-design will bring benefits that can help them to achieve the desired goals of their projects. This benefits can be: for the service design project itself by improving the creative process and developing better service definitions; for the service's customers by creating a better match between what is offer and what is needed, providing a better service experience, that can create more satisfaction; and for organizations by enhancing creativity, placing more focus on customers, improving cooperation between areas and creating enthusiasm for innovation (Steen *et al.*, 2011).

2.3.2 Service design for public services

Public service design is the process of planning people, infrastructures, communication and material components of a service, with the main goal of creating a service that meets the needs and expectations of citizens (Araujo *et al.*, 2013).

The dynamic changes that are happening concerning citizen engagement and involvement, and the new relations between Governments and citizens, open space for opportunities of future improvements that can be made by using design tools (Opromolla *et al.*, 2017).

Design is being increasingly used as a tool for confronting complex social problems by including users and other stakeholders in collaborative innovation process (Ansell & Torfing, 2014). Design can help to address the complexity of the public services challenges, like for example demographic, social and economic, and by exploiting collaborative approaches to the public services innovation, believing that the people who use and deliver the public services have the experience and the ideas to improve them (Meroni & Sangiorgi, 2011). Additionally, service design is able to change the focus from the processes to the user needs and experiences, and to re-think the interaction between the public sector provider and the citizen (Cox *et al.*, 2015). Nevertheless, despite the advantages of applying design elements in public services innovation, like understanding customer needs, testing iteratively and engaging teams, there are some concerns. Often the design thinking approach to the public sector led to public servants not using the full potential of design and designers ignore specific characteristics of the context, resulting in fail of creating long-lasting solution (van der Bijl-Brouwer, 2016). Moreover, the same author identifies two main challenges: complexity of identifying the human beings that are core to study in a public sector context and then the need to articulate the value of human-centred design methods and tools.

Policy makers and service designers need to use a multiplicity of information collecting methods. It is suggested by Trischler and Scott (2016) the combination of the use of persona developments with in-depth interviews, mapping techniques in collaborative workshops (involvement of users in the design of public services), and “touch points” analysis through observations, enables the capture of a clear view of all user experiences and consequently will help in the design of complex public service systems. The use of personas, focused on the user and their experiences, delivers insights into the lived experience that are not specific to isolated service encounters, being suitable to be used to identify themes that are relevant for a target group. Collaborative mapping exercises were identified as creators of an opportunity to analyse how the service system was facilitated by the service provider and how it was experienced by the user, as well as a moment of active participation of relevant user groups. This way it will be possible to design public service systems that better support consumers to co-create their wanted experiences (Trischler & Scott, 2016).

3 Methodology

This chapter describes the methodology followed in the study. First, we present the approach chosen, a qualitative research. Then, we explain the research design, describing the steps followed to obtain the results, including sample design, data collection and data analysis.

3.1 Method Used in the Project

This study aimed to understand the interaction between young citizens with public services, and consequently explore the factors that can be affecting the use of the digital channels by them, as well as explore how public services, mainly digital, can be better designed to serve young citizens. Therefore, the study had a small initial stage for understanding the point of view of AMA, through structured interviews, followed by two main phases. The first one was a qualitative exploratory research with young citizens, through semi-structured interviews, which provided information about the interaction between young citizens and public services, allowing to explore why young citizens are not using the digital public services and the various branches that may be affecting this use. After analysing the interviews, a customer journey of the actual interaction of young citizens with public services was built in order to better organize some of the insights and to better visualize how the interaction between young citizens and public services is being made. The second phase, which also involved a qualitative approach, was the beginning of the ideation stage of a service design process, where possible solutions for the previously identified public services problems were explored with young citizens, through an online co-design session.

The choice of conducting a qualitative research can be justified namely by need to: explore a problem or issue and understanding it deeply, that can only be found talking with people, empowering them to tell us their experiences; study a group of individuals, to identify variables that cannot be easily measured; and understand the context in which participants address a problem (Creswell & Poth, 2016).

The qualitative research allows to explore the inner experience of participants, to determine how meanings are formed and to discover instead of test variables. The concepts result from data and represent impressionistic understandings of what is inherent to experiences, actions, interactions and problems mentioned by participants (Corbin & Strauss, 2014), being possible to see the world as participants see (Charmaz, 2006).

The flexibility of qualitative studies allows the possibility of adding new pieces to the research while gathering data, enhancing the exploration of topics that emerge during the research process. Although a method provides a tool to help seeing (and some tools can be more useful than others), it does not provide automatic insight. Furthermore, despite being considered tools, they should be chosen to help answering the research questions. Finally, in order to have a significant analysis it is important to gather data that is detailed and focused, revealing the views, feelings, intentions and actions of participants (Charmaz, 2006).

3.2 Sample Design

Having in mind the context of this study and the reviewed literature, it was defined to listen young citizens (as users) and to incorporate the perspective and knowledge of the AMA (as providers), expecting that both stakeholders have the experience and the ideas to improve public services (Meroni & Sangiorgi, 2011). Therefore, the sample of this study (Appendix A) consisted of 30 young citizens (with ages between 18 and 25), covering different regions of Portugal and different occupations (P1 to P30), as well as three representatives of AMA (PA1 to PA3), covering different working areas (authentication; business services; and contents and services to the citizen in ePortugal). Young citizens were contacted using a convenience sample, based on the researcher's close network of contacts and the AMA participants were recruited internally by LabX. The five participants of the online co-design session were recruited through the contacts made during the interviews. In Figure 2 we can see some demographic data from the 30 young citizens that were interviewed. After interviewing the young citizens, we expected that we achieved sample saturation of the understanding of the actual interaction of young citizens with public services, in other words additional data would not sparks new insights nor exposes new proprieties about the categories (Charmaz, 2006).

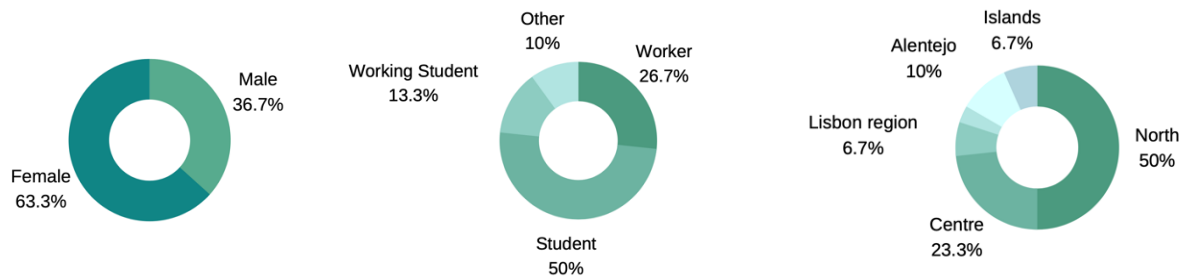


Figure 2. Demographic data of young citizens participants

3.3 Data Collection

The initial stage of the project started with a collection and an organization proposal of the public services offered digitally, through the ePortugal platform within "Citizens" section, and which could have the potential to fit into the interests of young people. After the platform had been exploited, the process of collecting which services could be targeted at young people began, following these steps: *i*) exploration of the life events and existing services presented in the platform; *ii*) collection for an Excel file the services offered that could be addressed to young people, followed by a proposal of their organization (Appendix B). Additionally, information from the ePortugal's Google analytics was also collected.

Interviewing is considered an useful data-gathering technique for various types of qualitative research, and consequently to this study, because it allows an in-depth exploration of a specific topic with a person that had his own experience (Charmaz, 2006). According to Fontana and Frey (2000), interviews can have different types: structured, semi-structured or unstructured.

The interviews with AMA representatives had the objective to understand what problems and challenges exist when making public services available through a digital channel, what has been done by the Public Administration to promote the adoption of the digital services among the younger population, and what kind of solutions they think could be important for the adoption of these digital services by this segment of the population. These interviews were structured,

because they were made by email, allowing open answers (script in Appendix C). In this form of interviews, the interviewer ask the same predefined questions to all participants (Fontana & Frey, 2000). The informed consent is in Appendix D.

Qualitative exploratory research with young citizens

To understand the interaction between young citizens and public services, and consequently explore the factors that can be affecting the use of the digital channels by them, it was necessary to identify, together with young citizens: *i*) the life events and matters experienced and that involved interaction with public services; *ii*) how the process went, which problems and positive points were found; and *iii*) the information on how young citizens would like to interact with public services. Therefore, semi-structured interviews were conducted, in order to acquire the necessary information for the study, giving participants the freedom to talk about unanticipated topics (script in Appendix E). In semi-structured interviews, there is an incomplete script, some questions may have been prepared, but there is space for improvisation (Myers & Newman, 2007).

The interviews with young citizens started by being face-to-face, but due to the restrictions imposed by the pandemic situation (Covid-19), and to the fact that the study tried to cover participants from different regions of the country, most of them were made remotely, using the mobile phone. For further processing of the information, an external audio recorder was used, whose request for authorization was included in the informed consent (Appendix D).

Beginning of ideation

In the second phase of the study we, aimed to explore possible solutions for some of the problems identified. Therefore, an online co-design session was held with four participants (there were five in the beginning, but one had technical problems). In this session, a simplified version of the customer journey was shown (Appendix F), as well as some of its problems. The objective was co-designing, together with young citizens, possible solutions for the most relevant problems of the customer journey (session plan in Appendix G). This co-design session is useful to understand how the public services, mainly digital ones, can be designed for young citizens, because, according to Steen *et al.* (2011), it can bring benefits such as: improving creativity; placing more focus on the user; and potentiating a better fit between what is offer and what is needed.

In addition, before the online co-design session, a questionnaire was made with the participants of the interviews (answered by 12 participants), where the same simplified version of the customer journey developed for the session was presented, the problems found for each of the customer journey phases were exposed, and participants were asked to classify them according to the degree (between 0 to 5) of identification with the problem and resolution relevance. The objective of this questionnaire was to select the problems that the young citizens consider most important in their interaction with the public services (questionnaire script in Appendix H).

3.4 Data Analysis

Qualitative researchers build their categories and themes from the “bottom-up”. This inductive process involve researchers to work back and forth between the organization made and the data, until they establish a comprehensive set of themes (Creswell & Poth, 2016).

To conduct qualitative research, we can resort to methods such as Thematic analysis and Grounded theory. According to Braun and Clarke (2006), Thematic analysis is a method for finding, analysing and reporting patterns (themes) in the data collected. The same authors identified six phases to develop it:

- familiarizing with data - transcribe, reading and re-reading data, as well as recording the initial ideas;
- generation of initial codes - coding data in codes (pieces that could be interesting to study);
- search for themes - looking to the codes and figuring out how they could be related and grouped. Being the themes a coherent and meaningfully pattern in data;
- reviewing themes - check if the themes work with the pieces of data coded and with all the data set. In this phase a “map” of the analysis should be generated;
- defining and naming themes - in this phase the themes and the overall story that analysis tell are define and refine. Clear definitions and names for each theme;
- producing the report - the final opportunity for analysis and selection of the examples, being the moment to tell the complicated story of the data.

Grounded theory is a “method of conducting qualitative research that focuses on creating conceptual frameworks or theories through building inductive analysis from the data”, it can increase the flexibility and, at same time, gives more focus than other methods (Charmaz, 2006, p. 187). Used well, Grounded theory increases the speed of gaining a clear focus on what is happening with the data, without sacrificing the detail of enacted scenes. Some principles of this method are: remain open to data; the script of the interviews change with leads of previous interviews; the analysis happened at same time that data collection; constructing analytic codes and categories from data, using the constant comparative method; multiple interviews to the same participant; and the memos writing (Charmaz, 2006).

The analysis of the interviews with AMA representatives was made question by question, since the interviews were answered through email and by three participants.

To analyse the interviews with the young citizens, principles of Thematic analysis (Braun & Clarke, 2006) with tenets of Grounded theory (Charmaz, 2006) were used. At the same time that data was collected, and whenever possible, the interview script was adapted (as new possible topics arose), interviews were transcribed and the first codes, that represented the pieces of data that could be interesting to study, were created by the researcher using NVivo12 software (Appendix I). As interviews were analysed, the search for possible themes started, where maps were developed to see how the information could be related and grouped. This organization of the data was continually reviewed, compared and restructured during the data analysis, where more maps and trees were created in an iterative process, in order to relate the topics.

For the co-design session, we analysed the *post-it* created by the participants during the session and the notes taken by one of the observers were analysed using NVivo12 software, where the recommendations were gathered into areas of intervention.

4 Results

In this chapter, we start by exploring the perspective of AMA's representatives regarding the challenges of developing and providing digital public services, and how they believe that the adoption of digital public services by young citizens can be improved. Then, we explore the results of the interviews with young citizens, by identifying the life events and public services used, and by understanding the customer journey built. In this way, we were able to explore why young citizens are not using digital services and what factors may be affecting this fact.

4.1 Understanding AMA's Perspective

Challenges in developing and providing digital public services

The results of the interviews with AMA's representatives indicated several challenges inherent to the development and provision of the digital services. Although PA3 said that the quality of the digital public services has been growing in recent years, he also mentioned that there are still inconsistent sectors and areas. The main challenge for developing and providing digital public services can be the actual use of the service and the communication. Moreover, PA2 identified some problems, namely: technical, derived from the difficulty of creating tools that can provide an answer to several requirements, but at same time enable their management by agencies without the needed technical resources; legislation, due to the legislator's lack of knowledge about the existing solutions and their advantages; and the resistance to change, evidenced by the lack of willingness to supply to the citizens tools that would allow them to interact electronically, and by an almost total blockage to change when the inclusion of those tools create the perception that it would lead to changes in the processes carried out for many years.

It was found that, in AMA's perspective, when developing and providing digital public services, it is necessary to: ensure adequacy of the service to the need; ensure the best possible user experience (importance of UX and design); ensure uniformity between different public institutions in the way they get the citizens to relate with information and concepts of public administration; avoid top-down solution development (the problem may sometimes not be well identified); and rethink the bureaucratic flows.

Improving young citizens' adoption of digital public services

The interviews showed that AMA tries to develop, and disseminate, inclusive and simple to use digital services. However, the attempt to use different channels for the younger segment (like social networks or forums with young audiences), according to PA2, is still not enough. PA1 declared that the cause for doing too little is connected to the lack of necessity of young citizens to take care of issues related with public services, adding that typically the need to interact with the Public Administration is higher in adult age. This opinion goes along with what PA3 said "*this segment [young citizens] is not the one that most seeks (or needs) to interact with public service*", adding that they do not have, for ePortugal, any specific initiative to this segment but have services for young citizens and life events favouring them (like vote or live abroad).

Although being stated that the young citizens' segment is not the one that has the most need to interact with public services, there were some initiatives pointed out that could be implemented to improve the adoption of digital public services by this segment, such as: simplification and reduction of procedures needed for the services, for example by aggregating in bundle as many procedures as possible; attribution of a strong and easy to use digital identity (like the digital mobile key) when interacting with the Public Administration (like college enrolment), that can be used in services for the young citizens; organize those services by life events specific to the segment (like having the first job or open the first company); and “*use videos, infographics, animations, even influencers, if needed, to communicate better with this audience*” (PA3).

Lastly, the digital divide should be fought (mainly outside the urban centres) and it should be incorporated regular mechanisms for continuous improvement, with the raise of expectations and ideation processes involving young citizens, allowing services procedures to be reviewed, minimized or even eliminated whenever possible.

4.2 Understanding Young Citizens' Perspective

4.2.1 Identifying life events and public services used by young citizens

The interviews with young citizens highlighted that they use this type of services because there is a need to take care of some issue created by a life event. Several life events and services were identified as already experienced or that young citizens think they might be experienced in the near future. The life events were divided into seven categories (Table 3), and for the needs created by those life events, they resorted to 13 different entities (Table 4).

Table 3. Life events where young citizens interacted with public services

Categories	Life events
<i>Civic duties</i>	<ul style="list-style-type: none"> • National Defence day • Vote • Go to the Police • Need for official documents
<i>Education</i>	<ul style="list-style-type: none"> • Necessity of financial supports • Apply for and attend college • Erasmus • Study in another city • School
<i>Changes in life</i>	<ul style="list-style-type: none"> • Death of a family member • Having their own house • Having children
<i>Work</i>	<ul style="list-style-type: none"> • Working or start working • Start doing IRS (Personal Income Tax) alone • Looking for a job • Unemployment
<i>Transport related</i>	
<i>Health related</i>	
<i>Travel related</i>	

Table 4. Entities and services used by young citizens

Entities	Services
<i>ADSE</i> (Institute for Disease Protection and Assistance)	<ul style="list-style-type: none"> • Ask for ADSE card
<i>DGAJ</i> (General Direction of the Administration of Justice)	<ul style="list-style-type: none"> • Ask for criminal record
<i>DGES</i> (General Direction for Higher Education)	<ul style="list-style-type: none"> • Apply to college
<i>Tax and Customs Authority</i> (Finance Portal)	<ul style="list-style-type: none"> • Open work activity • Do IRS (Personal Income Tax) • Issue and validate invoices • Green receipts and single acts
<i>IEFP</i> (Institute for Employment and Vocational Training)	<ul style="list-style-type: none"> • Do IEFP internships • Register with the employment office
<i>IMT</i> (Institute for Mobility and Transports)	<ul style="list-style-type: none"> • Obtain a driving license
<i>IRN</i> (Institute of Registries and Notaries)	<ul style="list-style-type: none"> • Change address • Ask for Passport • Ask for Citizen Card
<i>Public transports providers</i>	<ul style="list-style-type: none"> • Renew and monthly sign transport pass
<i>Social Security</i>	<ul style="list-style-type: none"> • Pay social security • Ask for grants and allowances • Ask for CESD (European Health Insurance Card)
<i>SNS</i> (National Health Service)	<ul style="list-style-type: none"> • Go to health centre • Go to the hospital • Use SNS24
<i>Bank</i>	<ul style="list-style-type: none"> • Home loan
<i>Housing Portal</i>	<ul style="list-style-type: none"> • Porta 65
<i>College websites</i>	<ul style="list-style-type: none"> • See several information regarding their attendance to college

The use of the public services by the young citizens followed different processes and encounters, whereupon being found that both digital and face-to-face services are used (Figure 3). From the 30 interviews, we found: the majority of the participants have already performed, or attempted to perform, at least one service digitally (“*Fully Digital*”); some participants mentioned that they have already dealt with matters involving both face-to-face and digital contact, or that schedule a face-to-face appointment using the online public services (“*Mix of procedures or digitally appointment*”); and, finally, almost all participants have already performed (alone) some type of service using the face-to-face channels (“*Fully Face-to-face*”).

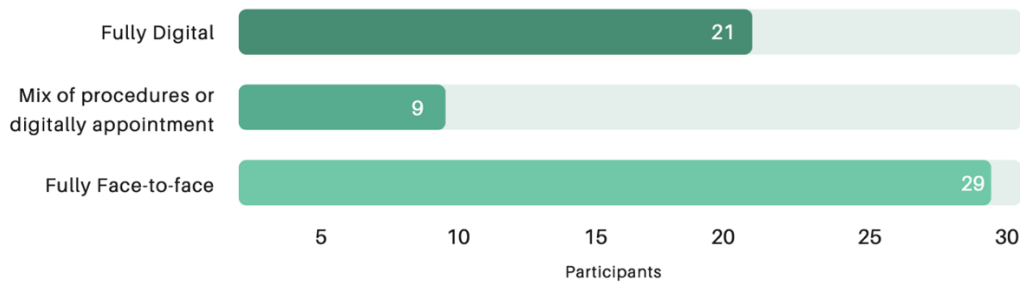


Figure 3. Use of the public services by young citizens

Although a significant number of participants had already some interaction with digital services, it is important to note that there are citizens who may not yet have much experience (only asked online the European Health Insurance Card or applied to college). This lack of experience may lead to some of the information being based on preconceived ideas about public services, which we believe should be considered as they also influence the interaction under study.

4.2.2 Customer journey of young citizens with public services

To better understand the overview of the actual situation concerning this topic, a customer journey of the interaction between young citizens and public services was developed based on the results of the interviews with young citizens considering the steps that they followed when they need to interact with public services and the problems found for each of those steps. In Figure 4 it is shown an overview of the customer journey that is divided in three phases: *i*) the pre-service (purple); *ii*) the service, separated in digital (blue) and face-to-face (yellow); and *iii*) the after service (orange). Throughout this topic we continue to explore the results of the interviews with young citizens, focusing on each phase of the customer journey, with more detail on pre-service and digital services, that were considered more relevant for the study of the adoption of digital public services and consequently the study.

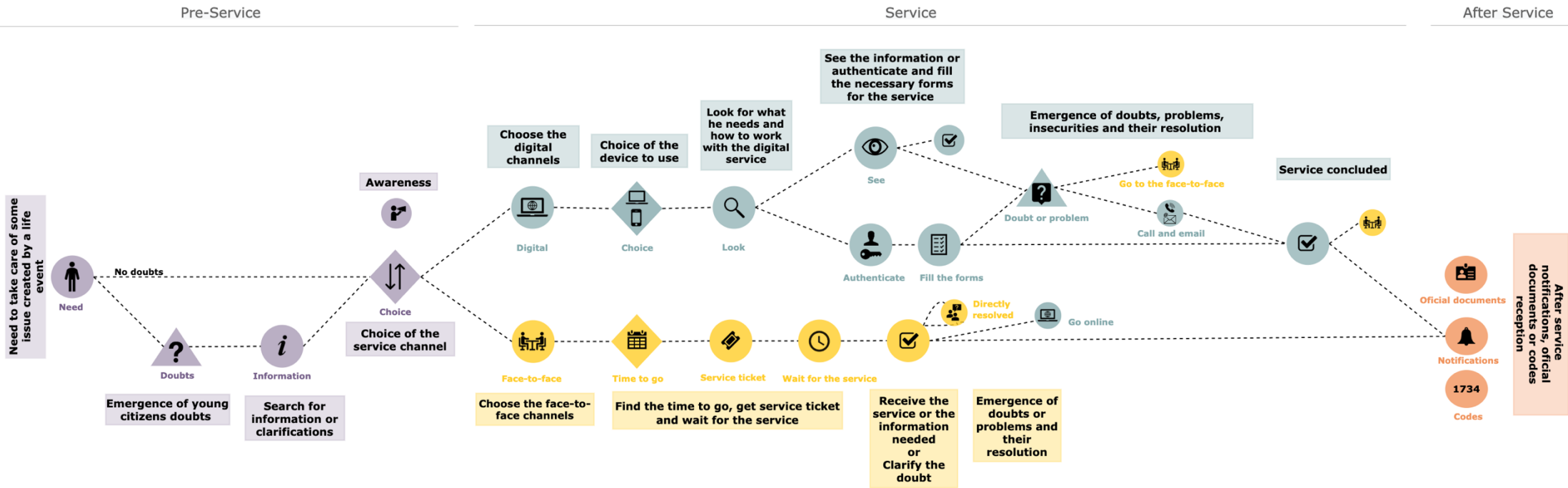


Figure 4. Overview of the customer journey

4.2.2.1 Pre-service phase

From the interviews with young citizens, it was found that the journey begins with young citizens and the emergence of a need to address some issues involving public services. The trigger to start the journey is not being activated by the Public Administration, and the need may not appear due to, for example, the stage of life in which young citizens are. When the need appears, it was found that they are several doubts about these interactions, which leads them to seek for information. Finally, if there are no doubts, if they managed to clarify themselves or they are actually seeking for clarification through the services, the young citizen have to decide, whenever possible, which channel they will choose to interact with (Figure 5).

Focusing with more detail on the begin of the journey, as we can see in Figure 5, it begins with young citizens and the emergence of a need to address an issue involving public services. Nevertheless, it was found that there is not much information coming to young citizens, that it is not always available to them and that they are the ones who need to go and search for the things they want and start the process (there is no initiative by the Public Administration). For example, P18 stated that when he needs to do the IRS, he usually knows the deadlines because typically someone tells him, and not by any Government source, adding that *"if no one told me I will never know those deadlines were coming"*. Additionally, and since these public services do not have a large presence on social networks, consequently young citizens do not follow them, leading to the only ways that exist to reach them are through television, radio or internet advertising.

"I'm always the one who goes out to communicate, to perceive something or to research something that I have doubts about." (P23: Other 19y, North)

Still regarding the beginning of the journey, it was found that the need to interact more often may not exist. There were participants mentioning that they do not need to use this type of services because they have everything up-to-date or simply because they have not had the need yet. This lack of necessity can derive from the fact that, they are in a stage of life where they do not need to use public services and assume that are the parents who usually deal with these matters. Furthermore, it was also mentioned that the use of this kind of services is not a frequent occurrence and there were even participants that when asked about the moments that they interacted with these services did not remember them and asked for examples. This lack of memory can be connected to the lack of necessity, the frequency of use or even, as one participant mentioned. to the lack of interest of young citizens on these services. Finally, it can be also interesting to note that the majority of the young citizens who mentioned this lack of necessity were still mainly students.

"Imagine I'm at a stage in my life where I don't make much use of those kinds of services [public services]" (P16: Student 24y, Centre)

"Because I still live with my parents and they take care of those things [public services related issues]" (P10: Student 20y, Centre)

"You have to give me some examples, because I don't remember these things [moments of interaction with public services]" (P24: Worker 25y, North)

Another point mentioned, related with the communication by the public services, but this time considered positive by the participants, was when they receive some type of information. For example, P4 that had the need to renew the citizen card, received a message saying that he could make an appointment.

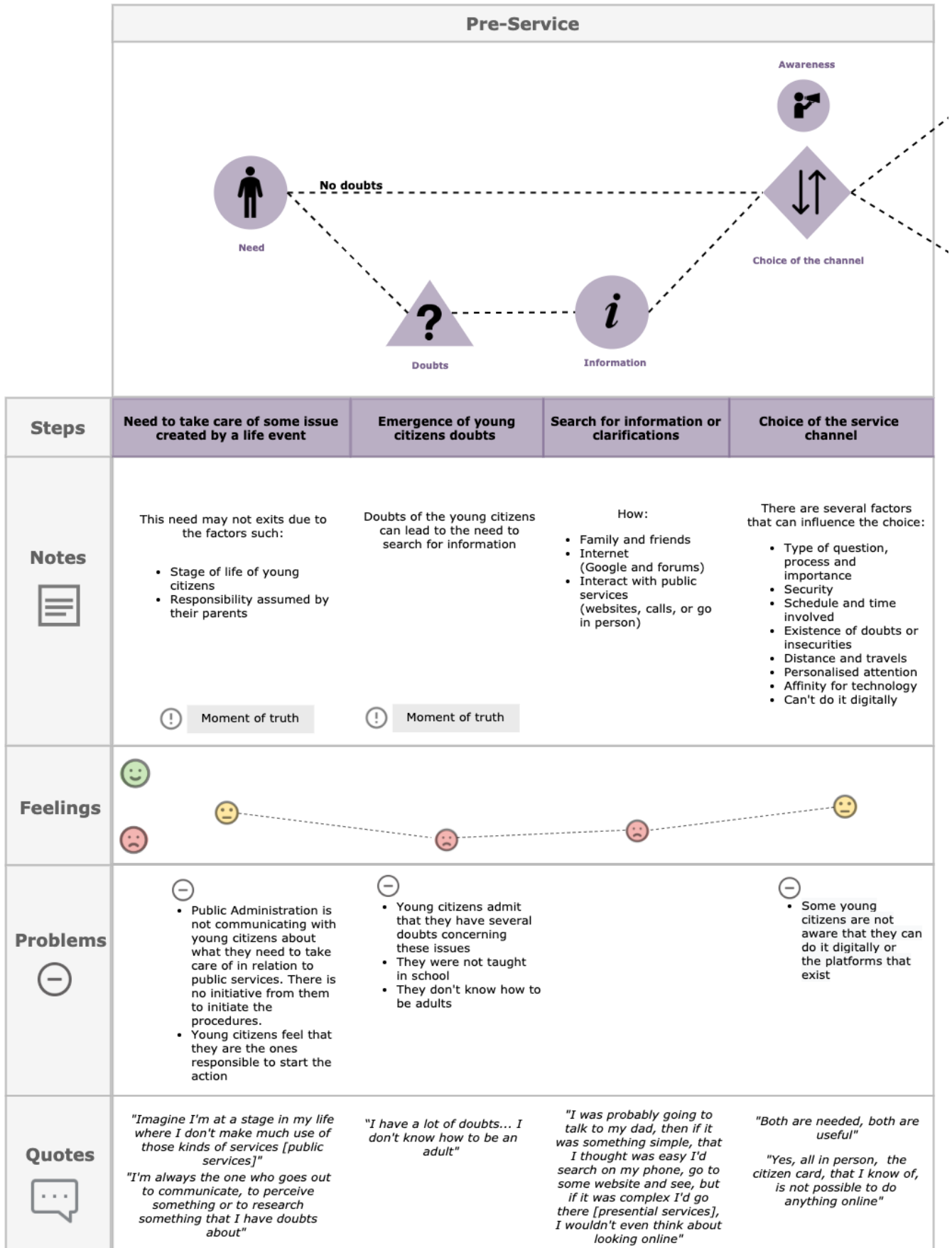


Figure 5. Pre-service focus of the customer journey

Doubts of the young citizens

After the need appears, it was found during the interviews with young citizens that they have several doubts concerning the moments when they need to interact with public services (Figure 5). Young citizens were not taught in school about how to deal with these matters, if they need to do something, they do not know how to do it, they feel lost and, even, as P29 said *"I have a lot of doubts... I don't know how to be an adult"*. Among the doubts found, it was noticed that the majority of them were related to the financial topic or start working, which could be connected with the fact that it is one important life events, a moment through which the members of this segment of citizens are passing.

"When we turn 18, we think: now what are we going to do? what legal issues do we have to deal with? I think we see on TV that we have to do this, we wonder if we fit in? ... I think it's a bit complex, although it can also be our [young people] laziness. We have everything so easy and we wanted to make it easier to deal with that kind of bureaucracy." (P20: Worker 25y, North)

Information search and clarification of doubts

As we can see in the pre-service phase of the customer journey (Figure 5), the existence of doubts can create the necessity to search for clarifications and obtain information. Therefore, when participants were asked what they did, or would do, to clear up their doubts and look for some information, a diversity of answers and processes were found. Despite three participants mentioned that they would go to ask on-site, the majority of participants stated that they search digitally and resort to family or known persons. Digitally, they look for what they need by doing Google searches, going to the websites of the services or, as P6 and P22 mentioned, they use of blogs and forums. Furthermore, if needed they resort to the telephone, email or go in person, with the expectation of P24 who said that if after looking online and calling, he is not going in person, even if it was not clarified. Finally, P30 said that after talking with his dad if it was a simple thing, we would look on the mobile phone otherwise, if he thought it was complex, he would go in person without searching online.

"I was probably going to talk to my dad, then if it was something simple, that I thought was easy I'd search on my phone, go to some website and see, but if it was complex, I'd go there [public services], I wouldn't even think about looking online" (P30: Student 18y, North)

Digital vs Face-to-face services

The last step of the pre-service phase (Figure 5) is the choice, whenever possible, of the channel through which young citizens want to interact. Therefore, when participants were asked, during the interviews, if there was the possibility of dealing with these matters in a fully digital way, they would continue to use or prefer the face-to-face services, the majority of the participants answered that they would prefer or use the digital ones. However, it is important to note that despite the fact that digitally being the most chosen one, there are participants who consider that *"both are needed, both are useful"* (P9: worker 24y, Alentejo) and who even prefer the face-to-face channels. Additionally, as we are going to see in next topic, some participants mentioned that their choice could depend on the service or their doubts. Others, that prefer digitally, even mention that there are issues they find easier to resolve in person, leading us to evaluate factors they considered that could influence their choice regarding this topic.

"I always try to go digitally, but face-to-face has something much better than digital, you have human interaction so it's much easier for you to understand things..." (P11: Student 18y, Lisbon Region)

Factors that can influence the choice of the service channel

After understanding their preference concerning the service channel, we tried to figure out the reasons that can be affecting their choice. In this way, we asked young citizens to think about the factors that that could make them prefer the digital channel over the face-to-face and vice versa, being uncovered the following ones:

- the type of question, process and importance (driver and inhibitor) - there are situations that young citizens believe can be better solved in person. This factor is affected by the comfort that they have with the process in question: if it is complex or simple; if it is the first time or not (as for the P28, where if it is something he used to do digitally, it makes his life easier, but if it is something he never done and is having trouble doing it online it may lead him to call or even go in person); if the need is more generalized or personalized; and if there are papers, signatures or other technical procedures involved (like fingerprint collection);
- the schedules and time involved (driver) - participants mentioned the fact that digitally they could use the service in their own schedule, avoid queues and, for those who work, there is no need to take days off works or vacations to go the services;
- existence of doubts and insecurities (inhibitor) - for young citizens it is normal that doubts emerge when using these services and that running into problems when using the digital services is also not good. P14 mentioned if he had any doubts or felt insecure about what he should do, he would prefer to go in person. P23 said that if for example *"in the event of any doubt that we are not understanding what the information on the website wanted to tell us we have no way to resort to another explanation"*. Additionally, it is believed that in person it is possible to have more information available because staff can help in different things or if needed ask other members of the staff, *"but I think it's normal for doubts to always arise, and if there's one person you can turn to, and she explain the things to you, it's always better"* (P3: Student 20y, Centre)
- distance and travels (driver and inhibitor) - P13 mentioned that he knew that he could enrol in the employment centre digitally, but since he lived close by, he went there in person. On the other hand, P20 said that in the past he lived away from a place where we could take care of these issues what could influence to choose online;
- the security (inhibitor) - involved in the process, the ability of identifying a person and the fact of dealing with such personal information in a computer, *"The only factor that comes to mind is safety and the ability to identify the person who's actually requesting the service"* (P18: Worker 24y, North)
- can't do it digitally (inhibitor) - like P13 that tried to renew the citizen card online but since it was a little confusing and could not find a concrete option to do it, he decided to go in person;
- personalized attention (inhibitor) - P27, that is from Alentejo, mentioned that everybody there knows each other and that there are less people, so the service is always more personalized, different from a big city like Porto or Lisbon;

- affinity for technology (driver) - for P12 the fact that young people have an affinity for technology makes him believe that it would not be confusing to do online.

Additionally, another factor that we believe that should be considered regarding the choice of the service channel, and that could be seen as an external factor to the citizens, is the lack of awareness that young citizens have about the different digital alternatives and platforms.

"Yes, all in person, the citizen card, that I know of, is not possible to do anything online" (P16: Student 24y, Centre)

The lack of awareness can be seen in the knowledge of young citizens around ePortugal platform. From the 30 interviewees, only five knew about it, and from those five, some never used and were not sure where they had heard about it. The ideas that the participants had about ePortugal vary from a place where they could solve doubts about how to do something (targeting young citizens), a platform that would help young citizens to have more knowledge about public services, to a place where the services can be gathered and accessed online. After the explanations about the platform some participants had positive reactions, saying that it looked useful, very convenient, interesting and that there is not proper advertising.

"This is very interesting, I really think that if young people knew, if this platform [ePortugal] was dynamized, it would be very important, for young people and not only, but by chance I've never really heard of " (P20: Worker 25y, North)

4.2.2.2 Digital services phase

When exploring the digital services phase (Figure 6), we can see that after choosing the digital channels, young citizens need to decide the device that they are going to use to access the service. Then, they need to find the platform or website that allows them to perform the service or see the needed information, as well as look for what they are searching for and understand how to use the service. The next step splits the path in two, representing both the citizens that are just going to look for some information and the ones that are actually going to perform the service by authenticating and filling the necessary forms (following the necessary steps). During these online processes, it is possible for doubts, problems or insecurities to emerge, leading young citizens to try to solve them by calling, emailing and going to the face-to-face services if needed. After the resolution, or if everything went smoothly, the online service is concluded, with the possibility of creating uncertainty as to whether or not everything was taken care of. Additionally, the end of the digital interaction can represent a connection point for the face-to-face services if, for example, the online procedure was to book an appointment.

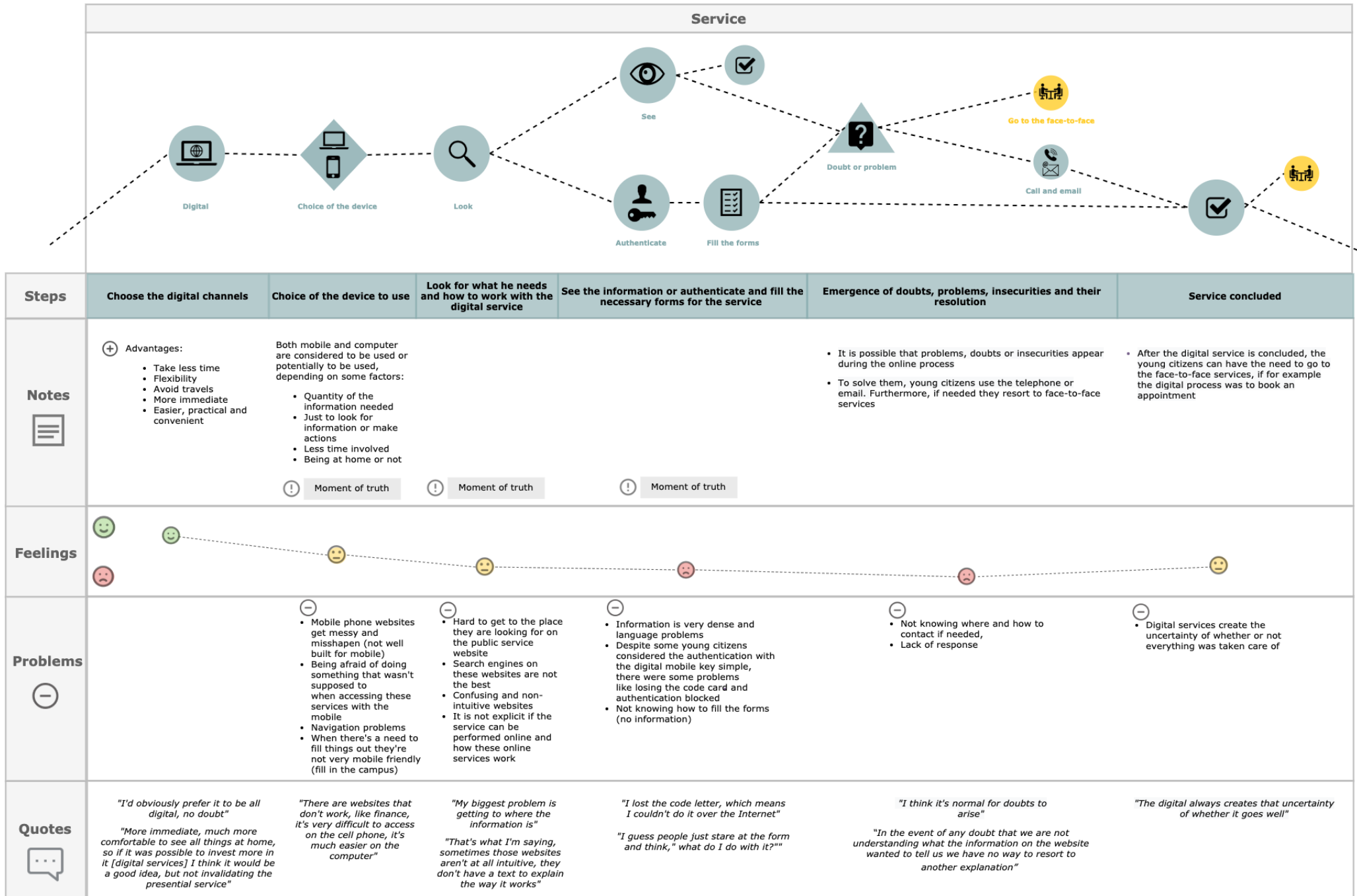


Figure 6. Digital services focus of the customer journey

For the use of digital services, several advantages and problems, presented in Table 5, were identified by the young citizens during the interviews.

Table 5. Digital Services advantages and problems

<i>Advantages</i>	<ul style="list-style-type: none"> . Takes less time and avoid queues (faster) . Flexibility . Avoid travels . More immediate . Easier, practical and convenient
<i>Problems</i>	<ul style="list-style-type: none"> . Lack of response to emails and forums . It is hard to get to the place they are looking on the public service websites . Public service websites are confusing and not intuitive . It is not explicit if the service can be performed online and it is not explained how these online services work . Not knowing where and how to contact if needed, and too long to contact . Digital services create the uncertainty of whether or not everything is taken care of

Several examples of these advantages and problems are shown below:

“I tried to make the appointment to the citizen's shop, but I could never do it, it was a bit confusing, because it said citizen's shop there but then I had no concrete option to go exactly to the citizen's card”. (P13: Unemployed 25y, Centre)

“I made the appointment and it wasn't there, so I always wondered if I did it right or not”. (P17: Working Student 21y, Centre)

“Besides filling out a form and not knowing if it is okay, the problem is not having feedback at the end. This is something I'm very much in doubt about, "but is this what they want?"” (P19: Working student 24y, North)

“Ask for the criminal record, although I think in that respect the process is all online and I think it is quite intuitive, because the site is quite easy to get there” (P22: Worker 25y, North)

Devices used digitally

As we can see in the digital services phase of the customer journey (Figure 6), young citizens can access to the digital services using different devices, such as computer and mobile phone. When asked about the devices that they use, or would use, to interact with public services, it was found that, even that the participants had access to a computer, both mobile phone and computer are preferred. This choice of device is comparable with the general access to ePortugal, where the access by computer was 54,4% and by mobile was 43,1% (ePortugal Google analytics – from 2 January until 9 of March). The use of a mobile phone is related with the fact that *“is always with me and I can see anything anywhere”* (P13: Unemployed 25y, Centre), as well as being faster and more accessible. The use of the computer is preferred due to bigger screens, websites not being prepared to the mobile, see information more visibly and widely, easier navigation and the fact that is more *“formal”*.

Despite both devices are used, or intended to be used, and each one having distinct advantages, it is also interesting to notice that young citizens believe that the following factors influence this choice:

- if it is just to search information or make actions;
- quantity of information needed;
- if works or not all day on the computer;
- the time involved (whether it will take long or not);
- what is the closest thing;
- being at home or not.

"I think I do more research on my cell phone, but if I really want to do something, I'll go to the computer." (P14 Student 25y, North)

"If I'm doing something that needs more information, like the finance portal, it's probably on the computer." (P19: Working student 24y, North)

"It depends, when it's a faster, more transient thing I prefer the mobile phone, when it's something that's going to take some time from me, I'd rather be in front of the computer" (P25: Student 18y, North)

Furthermore, in the exploration of this topic we identified, in the interviews, problems of accessing to digital public services using a mobile phone, namely:

- mobile phone websites get messy and misshapen (are not well built for mobile);
- afraid of doing something that they were not supposed when using this device to access the services;
- navigation problems;
- when there's a need to fill things out they're not very mobile friendly, fill in the campus (the same participant that said this, stated that many of the pages that are just for information display are mobile phone prepared, the problem is for the actions, and that *"If websites were formatted differently people would use their phone for everything"* (P19: Working student 24y, North)).

The impact of these problems can be illustrated in ePortugal, which is developed to optimize the use through any device (computer, smartphone or tablet), and have a higher bounce rate³ for the mobile phone (75,7%) than for the desktop (55,6%) (ePortugal Google analytics – from 2 January until 9 of March).

Mobile applications vs websites

In order to further explore the topic of device's choice, we tried to understand the use of service applications or websites on the daily life of the young citizens (in general services, not only focusing on public services), by asking them how they normally interact with services they use. The results indicate a variety in how they interact with services. From participants saying that they have/use applications for everything like college, banks and gyms, to the ones who said that it depends on the frequency of the use *"if it's a one-time thing I probably use the site, but if it's a recurring thing I download the app"* (P19: Working student 24y, North), and, finally, to the ones who said that use more websites or both.

³ The percentage of single page sessions. Users that only saw one page before leaving the website.

If the problem of “*usually the application always leaves something to be desired in relation to a site, so I think I'd prefer website*”, presented by P14 is solved, there were several positive points of using an application expressed by other participants, such as: being more user friendly; being more practical; faster and easier to access (no need to open browsers and type); being better organized; and having notifications (mentioned by P26, concerning the notifications sent by his bank application). Regarding two participants that talked about public services, P15 normally uses the website because it is something he does not use daily, so he ends up not downloading. By contrast, P24 said that if an application existed, he would probably have it on his mobile phone, and when needed he would have a much faster access (for example when he was away from home), adding that he would end up using both.

Finally, P22 stated an interesting thing about comparing private and public service platforms, which emphasizes the importance of receiving feedback from users.

"Usually in private companies the design is more careful and more intuitive, I think the process is more optimized... I think they may get more feedback from users, and adjust applications more often, they're updated more often, and I think that's why it works better" (P22: Worker 25y, North)

Checking information in digital services

The results show that young citizens can resort to public service websites and platforms to search for information (Figure 6). Therefore, regarding the moment when they are digitally viewing the information on these websites, represented on the digital services phase of the customer journey, there were different problems and suggestions identified during the interviews with young citizens (Table 6 and Table 7).

Table 6. Information problems and suggestions

<i>Problems</i>	<ul style="list-style-type: none"> . The information is very dense, mass and difficult to understand . Unclear information . Lack of information on how to work with public services . Ambiguities . Search engines on public service websites are not the best . Lack of contacts . Not knowing how to fill out the necessary forms in some digital services (no information)
<i>Suggestions</i>	<ul style="list-style-type: none"> . Videos explaining step by step (like a tutorial) . Clearer structure for contents . Glossary or FAQ . Have the contacts to where it is possible to contact . Explanation of how to fill in the forms

Some examples of information problems are shown below:

"I think there seems to be that fear of going looking, it's easier to ask someone or go to the service because just imagining going to look for all that information we've almost given up, I think it's even more the idea we have than the actual interaction we've already had with the online platform." (P20: Worker 25y, North)

"They don't describe the campuses [of the form], I think that for those who don't know anything about finance, that could be useful" (P19: Working Student 24y, North)

Table 7. Language problems and suggestions

<i>Problems</i>	<ul style="list-style-type: none"> • Several names for the same thing • Different from the plain language that they are used to (very basic language). It is too much intellectual and complex • Use of unknown terms • Ambiguous language • Lack of different languages
<i>Suggestions</i>	<ul style="list-style-type: none"> • The language could be on a lower level • Simplify the language

Preferences in the format in which information is presented

Still focusing on the information topic, we explored the preferences in the format that information is presented, and once again, there were diversified answers. From having preference to see the information in videos explaining step by step what they should do, to read a simple and clear text because they are better for understanding and allows to read and reread, to schematic images and to an array of the different formats. Additionally, an interesting perspective presented by P24, is that the preference could depend, *"when it comes to clarifying doubts, I prefer text, when it's a procedure of seeing how you get somewhere, how you get something, I prefer a video, because it's more visual"*. Thus, and even that it was understood the challenge that it could be to deliver this type of information in different formats others than text, the diversity found in the preferences can be an indicator of the need to present it in a set of different forms.

Authentication in digital services

As we can see in the digital services phase of the customer journey (Figure 6), during the online process it is possible that young citizens need to authenticate themselves into the service platform or website. In this way, when asked how they generally authenticate themselves, and prefer to authenticate, in the applications and websites that they use on a daily basis, it was declared that they use email and then passwords and fingerprint.

Concerning the Digital Mobile Key, although several participants did not know about it, there were participants who did, or at least had already heard about it, and have even used it, stating that it is easy to use.

"It was very simple, I think this digital mobile key thing is very good, to be standard for this kind of services, because it is very easy to use at home, it is very immediate and I think it breaks a barrier that people have with this kind of services that is to get to things, I think it makes it a lot easier!" (P19: Working student 24y, North).

On the other hand, there were some problems revealed regarding the use of the digital mobile key, that should be taken into account since they can harm the use of the digital services, like for example: sending the key would take longer than the time P20 had to take care of the issue; not having or losing the code card; authentication blocked and redirected P18 to the face-to-face; not being sure if it is active; could not be activated; and for participant P2 the code letter was sent to his house and not to where he was living/studying.

"I couldn't renew the citizen card online because it somehow blocked authentication with my phone number and said I had to go to a citizen's shop" (P18: Worker 24y, North)

Digital services doubts clarification and problems resolution

As we saw before, and as its represented in the digital services phase of the customer journey (Figure 6), it is possible for doubts and problems to emerge during the digital process, what leads young citizens to go to look for some clarification, following the processes previously mentioned, like calling, emailing, or even resorting to the face-to-face services.

During the interviews it was possible to collect some suggestions on how communication in the digital channel is intended. P6 stated that normally when things go digital, providers forget the telephone part, and often calls take a long time to be answered. Thus, it was found among young citizens that they consider important to have available all the updated contacts and networks that is possible to contact with, a phone number to where they can contact and *"that it doesn't take three hours to be attended to as it often does"* (P11: Student 18y, Lisbon Region) and have something that allow more instant and faster answers for when a question comes up when doing the process digitally (instead of losing a lot of time searching on the internet). This suggestion could be a channel where there is someone on the other side available to answer the questions, like a direct online chat.

"For example, a chat that was during office hours, but that could answer several questions in real time" (P22: Worker 25y, North)

4.2.2.3 Face-to-face services phase

Looking to the face-to-face phase of the customer journey (Figure 7), it was found in the interviews that when young citizens want, or need, to use the face-to-face channels, they first need to find a day and time to go there. Then, they need to get the service ticket (if they did not book the appointment) and wait for the service. Later, they receive the service or get the desired information and clarification. Finally, despite being mentioned that it can happen, that after contacting with this channel there was the need to look for information online, the face-to-face services have the advantage in case some problem or doubt appear, since it can be directly solved by the service employee.

Just like for the digital service, for this phase several advantages and problems were identified by the young citizens during the interviews (Table 8).

Table 8. Face-to-face Services advantages and problems

<i>Advantages</i>	<ul style="list-style-type: none"> . With human interaction is easier/simpler to understand . More clarity is achieved, doubts are better clarified, and you can clear up doubts you didn't even know you had . You get to know everything you need to do there at that time, no need to research how to fill "this" out where to get "that". Staff can clearly explain or guarantee how things work . More safety (personal data, problems of falsification, identity identification) . Security of being a person to take care of the issue . Important for other citizens segments
<i>Problems</i>	<ul style="list-style-type: none"> . Waiting times (6 hours at IMT, 4 hours for Citizen Card. More than 1h is too much) . Not knowing which service ticket to choose (and there's no one to clear up these doubts) . Lack of sympathy . Service hours = people's working hours . There is no feedback on the estimated real time of waiting . Too many people for the number of staff . Confusing citizen shops

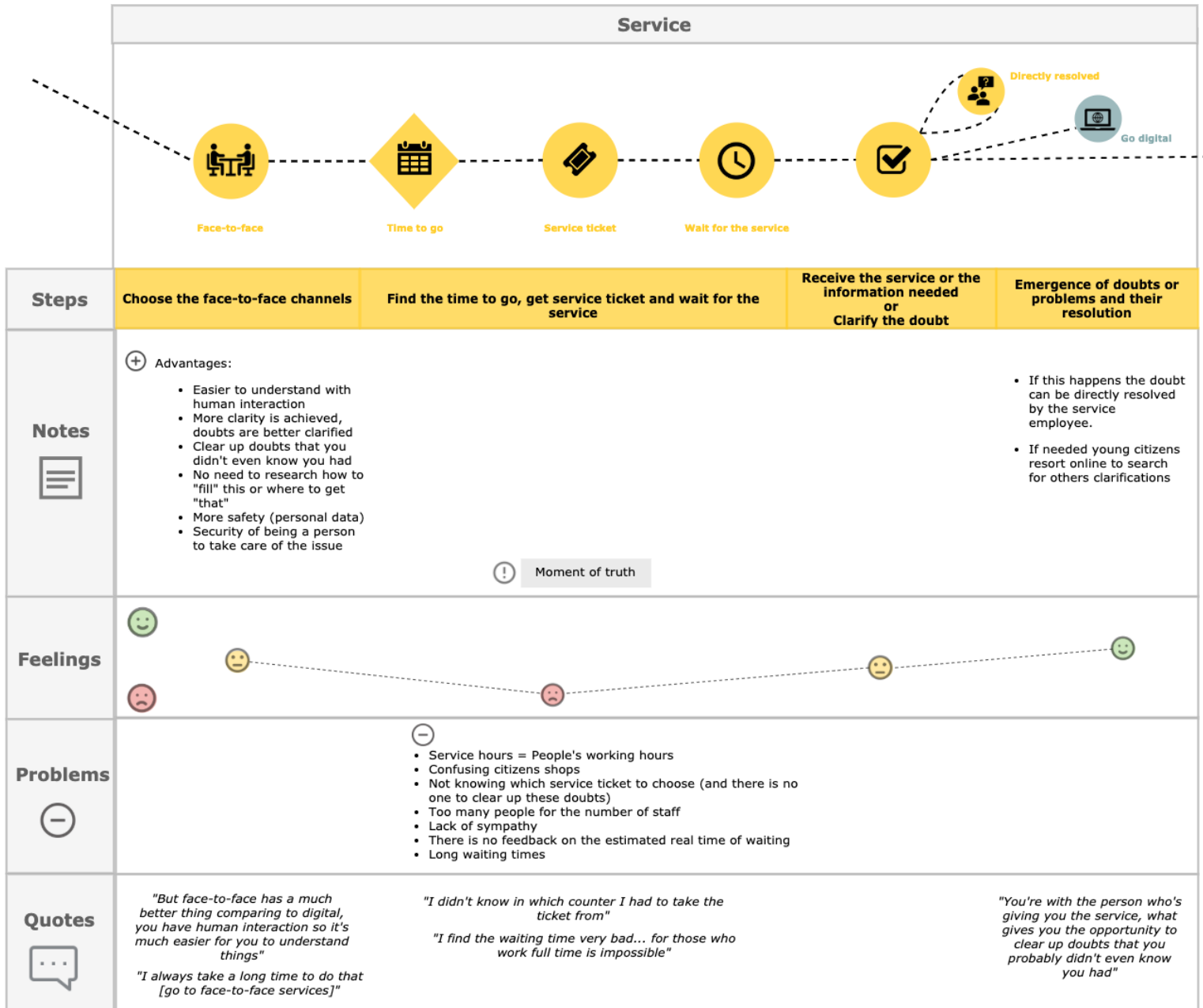


Figure 7. Face-to-face services focus of the customer journey

4.2.2.4 After service phase

After the service is concluded, it was found in the interviews with young citizens that several things can happen: notifications reception; codes for other processes; and official documents reception. Moreover, after the need is fulfilled, some young citizens may not need to interact with public services in the near future (Figure 8).

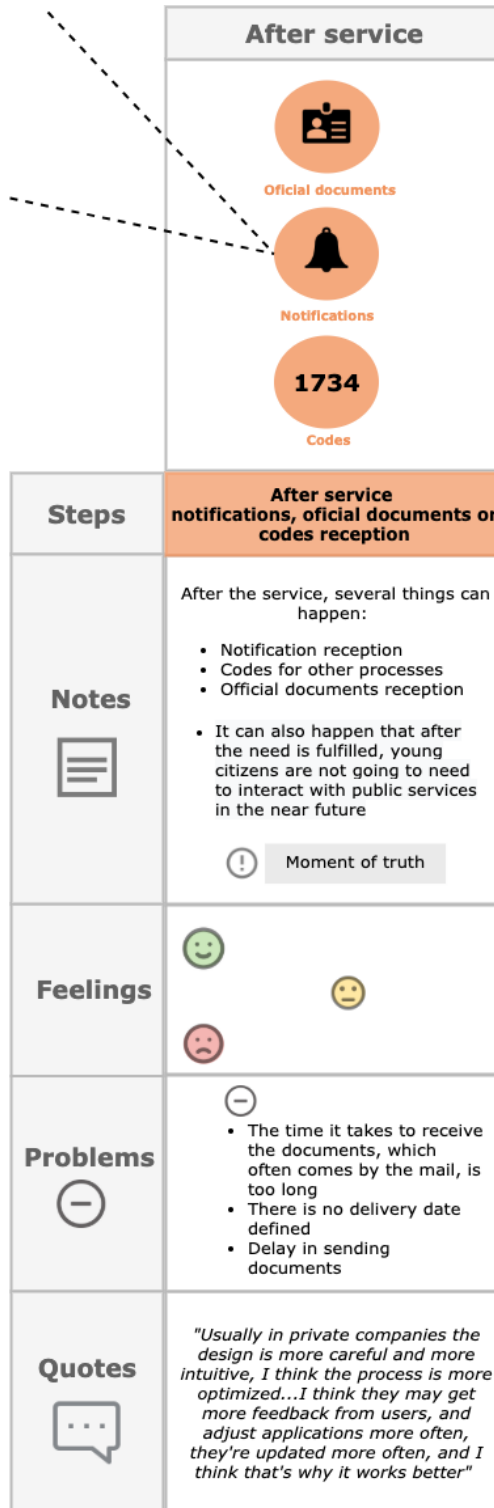


Figure 8. After service focus of the customer journey

5 Generating Possible Solutions for Public Services

In order to ideate possible solutions for some of the problems found in the interaction of young citizens with public services, an online co-design session was held. Before the co-design session, a questionnaire was carried out with the participants of the interviews to understand how young citizens identified themselves with each of the previously raised problems and what degree of resolution relevance they attributed to each one. All the problems that were presented in the questionnaire are listed and ranked here according to their importance⁴.

Pre-service

1. I was never taught in school how to deal with these matters.
2. Public services do not communicate with me on the matters that I have to deal with. I feel that I am responsible for initiating the process.
3. I have a lot of doubts about these matters, I do not know what I have to deal with.
4. I am not aware of the possibility of using these services (IRN, Social Security, Finance, etc.) digitally or of the existence of different platforms available.
5. Public services do not inform me how to proceed.

Digital Services

1. Search engines on public service websites are not the best.
2. It is hard to get to the place I am looking for on public service websites.
3. On the mobile phone the sites are very unformatted (they are not well built for the mobile).
4. Authentication problems with the digital mobile key (losing the pin card, authentication blocked, pin card took too long...).
5. It is not explained how these online services work.
6. It is not explicit whether it is possible to perform the service online.
7. Filling in the fields, e.g. of a form, on the mobile phone is not easy.
8. I do not know how to fill out the necessary forms in some digital services.
9. The information is very dense and difficult to understand.
10. The language used is not the most appropriate.
11. Digital services leave me uncertain as whether or not everything has been taken care of.
12. I do not know where to contact in case of need.
13. Lack of response to my contact requests.
14. I am afraid I am going to do something I should not do on my cell phone when using this device to access the services.

Face-to-face Services

1. The waiting times are very long.
2. There is no feedback on the estimated real time of waiting.
3. The hours of operation of the services overlap with my work schedule.
4. There are few employees for the total number of people who intend to attend.
5. I do not know what service ticket I have to choose and there is no one to help me.
6. The citizen's shops are confusing.
7. Lack of sympathy from employees.

⁴ Taking in consideration both the resolution relevance and identification with the problem.

Lastly, it was possible to detect some problems that young citizens believe to exist in the after service, in particular:

- the time it takes to receive these documents, which often come in the mail, is too long;
- there is no delivery date defined;
- delay in sending documents.

During the co-design session, we focus the ideation in the pre-service and digital service phase of the customer journey, due to session time restrictions and relevance of these phases for the adoption of digital public services. It was decided that the discussion of the problems was made in their order of relevance. However, at the same time, problems that could belong to the same area of intervention were aggregated, and only the problems that would enhance the discussion of solutions in such a session were addressed.

5.1 Co-designed Solutions for the Pre-service

Even before the actual use of the service, problems were identified. During the co-design session, and focusing on the pre-service phase (Appendix J), it was possible to discuss all the problems that were previously found.

Doubts of young citizens

For the problem of not being taught at school and having several doubts, young citizens believe that the topic of public services and citizens' responsibilities should be incorporated into the programmatic content of high school, stating that learning about this at school could really make the difference and *"If there's this classes initiative, I just wish I could go back and go to class"* (P8: Worker 25y, North). Additionally, there were participants who also believed that there should be a set of talks and seminars made by the public entities, using dynamic and young people with the ability to captivate the audience. However, it should be noticed the opinion of one participant who referred that talks and seminars would not be enough because young citizens would end up forgetting everything after a week. Therefore, a combination of both classes and talks could work better. Finally, another alternative provided was to present the different public services resources on the National Defence Day, where all young citizens have to go, or on another day that all young citizens have to attend.

Lack of initiative by the Public Administration

Regarding the problem of the lack of initiative by the Public Administration, P19 stated that having a website and wait for young citizens to find it, is not realistic, adding that *"the urge to get the information should not be from young people"*. Public administration should take the initiative, and to do that, it could send notifications, such as emails or mobile messages, that alert young citizens to what needs to be addressed and how to proceed (adding, for example, a link to the place where they can perform the service). This notification should be sent when a specific age or time of having to use a service approaches, in specific times of the year or when an official document is expiring and needs to be renewed.

Lack of knowledge of different platforms (communication and advertising)

The last problems addressed in the pre-service phase were related with the communication and advertising. For P24 and P19, there could be small advertisements on television about frequent needs. On the other hand, P5 stated that he does not watch much television, and even if he does not know if young citizens will follow the social networks of public services, it could be good to have advertising presented there, created, for example, after some individual searched for something related with this topic (e.g. through Google Ads). This perspective goes in line with the opinion of P8, who also mentioned advertising on social media (particularly Instagram) where it could appear something like "Have you taken care of your citizen card?". Furthermore, still on the social media spectrum (particularly on Instagram), it could exist some type of Q&A where young citizens could expose their questions and doubts, and that could serve as a base for the creation of an FAQ page. Finally, other alternatives mentioned were: communication through 1-minute explanatory videos of "how to take this... how to do that" which could be shared in specific times of the year according to the matters that are more common to be needed (important also for the lack of initiative problem); and newsletters.

5.2 Co-designed Solutions for the Digital Services

Throughout the focus on the digital service phase (Appendix K), problems related with authentication, organization and visibility of the digital public services, organization of online processes, need for help during the online process and uncertainty caused by digital services were discussed.

Authentication problems

Regarding the authentication with the digital mobile key, it was suggested that it should be possible to recover it online with a password or a "secret question", as well as provide alternative forms of authentication like fingerprint and facial identification.

Difficulties due to the organization and visibility of digital public services

The problems of being hard to find the places that they are looking for and not knowing if it is possible to carry out the online service were also addressed. The organization of the digital public services should be more integrated, with only one starting point and where everything was clear. In terms of visibility, the platforms should have highly visible and big buttons to draw the attention to where certain tasks can be performed, icons that visually identify if the service can be performed online or not and the different platforms should have a standardized visual appearance.

The topic of the organization led to the suggestion of creating a mobile application (App) that should be more universal and that would bring together all the services with the respective information, *"for example, on the citizen's card: a "theoretical" part of how to take it/renew and then "do it here"*" (P8: Worker 25y, North). This App could allow citizens to have their own profile, where it could be possible to select favourites services (or the most frequently used), activate notifications (does not need to have only static content, can have also informative notifications) and fingerprint authentication. Although, P5 said that he would only use the App from time to time, downloading it and then uninstall it, doing that whenever he needed and that if the website was properly prepared to be used on the mobile phone it would be better. The

idea of the application was discussed by more than one participant, and P24 even said that he would be a frequent user of the application, which may indicate that both platforms could coexist.

“I think the mobile phone would make sense, with an application, if it had access to all services there, with fingerprint access, that would be amazing!”

(P19: Working Student 24y, North)

“By the way, we could vote in the app for the national elections. A lot of people don't live near the school where they have to vote” (P8: Worker 25y, North)

Problems and doubts during the online process (organization of online processes)

It was found that during the online process doubts and problems can appear, like for example not knowing how to fill forms, derived from the fact that it is not explained how this online services work. To fight these problems, the process should contain features that can help young citizens, namely: video guides accompanying the various sections of the service; infographic schemes with the main flows of the process summarized; option to consult instruction template before the forms (available in collapsible); visual clues on the forms that make them understand what it is needed to be written; show a description/meaning of some campus of the forms (through hover); and have examples of filled forms.

Need for help during the online process

To solve the doubts and insecurities that occur during the online process, the services should provide a real time telephone helpline, even that it was understood by the young citizens that the demand can get very high which can lead to no time or patience to help. These telephone calls could be also made directly through the application and be answered by employees who have, during their working day, a specific hour to support the digital processes. In addition, it was suggested that even before the possibility of calling, there could exist a chat bot to help with the names of the things that normally cause doubts (like taxes for example) or with already pre-made questions that usually appear from specific problems. Then, if it was not enlightening enough, the chat bot should show the contact details for the user. Finally, a real time chat solution during normal working hours was suggested by P8 (a suggestion already previously provided by another participant during the interviews).

Uncertainty caused by digital services

In order to fight the uncertainty that the digital services can create (important for the after service phase), young citizens recommended that after completing the service, they would like to receive an email, a message (SMS) or a notification. They would like to know the estimated delivery time of documents or access codes and have access to the status of the process (tracking).

“Regarding the feedback: say something like "The normal arrival time of your digital mobile key is X days".” (P8: Worker 25y, North)

Additionally, a small note presented by one of the participants was that for him there are several issues that are just a matter of formatting, where it should be more perceptible of what needs to be done, adding that an efficient point to spend resources is on navigation and visual issues.

Lastly, during the session, the question of data privacy arose, creating also some interesting insights about how the young citizens are, or not, concern about the amount of data that the Government has, and would have, with these digital public services. Although being said that this generation no longer cares much about protecting their data and that “*I think we’ve already given so many permissions to so much things, that they already know so much about us, that I don’t think that for being the Government that was going to make the difference.*” (P8: Worker 25y, North), P19 feels insecure on sharing his data with the Government, because he does not trust that the Government will protect his data well. Furthermore, the data should not be used with ulterior motives, such as political ends and should comply with GDPR (General Data Protection Regulation).

5.3 Recommendations for the Public Services

This study allowed the identification of several recommendations for designing public services, mainly digital services, for young citizens. Hence, a cluster of recommendations resulted from this study, combined with others from the literature and from project team discussions are presented. In Table 9 we show the cluster of recommendations for the pre-service and in Table 10 the cluster of recommendations for the digital services, both organised by areas of intervention.

Table 9. Recommendations for the pre-service

Pre-service	
Area of intervention	Recommendations
<i>Learning and doubts</i>	<ol style="list-style-type: none"> 1. Incorporate at school (high school) the topic of public services and citizens responsibilities 2. Talks and seminars made by the public entities, using dynamic and young people with the ability to captivate the audience 3. Use the National Defence Day, or other day that all the young citizens have to go, to present the different public services resources <p><u>Additionally:</u></p> <ol style="list-style-type: none"> 4. Affiliation with educational institutions (Karim, 2019) 5. “Life to do list” - where it is possible to consult what they need to do at specific times in their beginning of life as an adult
<i>Initiative by Public Administration</i>	<ol style="list-style-type: none"> 6. Notifications (emails or mobile messages) about the things that need to be addressed and how to proceed (first IRS or book the renewal of your citizens card) <p><u>Additionally:</u></p> <ol style="list-style-type: none"> 7. Have the possibility of disable the notifications
<i>Communication and advertising</i>	<ol style="list-style-type: none"> 8. Small television advertisements 9. Social network advertising (with Q&A initiatives for example)

-
10. 1-minute videos on “how to do that...”
 11. Newsletters

Additionally:

12. Content should be available at appropriate touch points (Karim, 2019), “be where they are” like social media, school, college and public transports
 13. The advertisement should highlight the advantages of digital (they need to know the benefits)
 14. Influencers or young ambassadors (Karim, 2019)
-

Table 10. Recommendations for the digital services

Digital services	
Area of intervention	Recommendations
<i>Information provided and language used</i>	<ol style="list-style-type: none"> 1. Smaller amounts of information (Sabaitytė and Davidavičius, 2017) 2. Mix of information formats. More images and audiovisual content (Karim, 2019) 3. Simplify the language
<i>Authentication</i>	<ol style="list-style-type: none"> 4. Online recovery of the Digital Mobile Key 5. Provide alternative forms of authentication (like fingerprints and facial identification) <p><u>Additionally:</u></p> <ol style="list-style-type: none"> 6. Facilitate the process of having the codes for the Digital Mobile Key (using different forms of identification such as fingerprint, facial identification or possibility of creating a single use code through an app) 7. Creation of the Digital Mobile Key (or a strong and easy to use digital identity) in moments like college enrolment (AMA)
<i>Organization and visibility of the digital public services</i>	<ol style="list-style-type: none"> 8. Organization more integrated, with only one starting point 9. Highly visible and big buttons to draw attention to where certain tasks can be performed 10. Icons that visually identify if the service can be performed online 11. Standardize the visual aspect of the different platforms 12. Creation of a mobile application (gather all the services, allow profiles, select favourite services, activate notifications and fingerprint authentication) <p><u>Additionally:</u></p> <ol style="list-style-type: none"> 13. If not a mobile application, at least responsiveness and intuitive websites on mobile devices (Karim, 2019)

	<p>14. The uniformity between different public institutions should also be at the level of how citizens relate with information and concepts of Public Administration (AMA) as well as, whenever possible, with processes</p> <p>15. Search option and categorization of information areas on website and applications (Karim, 2019)</p> <p>16. Creation of a young citizens space inside the digital public services</p> <p>17. Organization of the services by questions like "Do you want to start working?" "Do you need to pay your IRS?"</p>
<i>Organization of online processes</i>	<p>18. Video guides</p> <p>19. Infographic schemes with the main flows of the process summarized</p> <p>20. Option to consult an instruction template before the forms (available in collapsible)</p> <p>21. Visual clues on the forms that make them understand what it is needed to be written</p> <p>22. Show a description/meaning of some campus of the forms (through hover)</p> <p>23. Have examples of filled forms</p> <p><u>Additionally:</u></p> <p>24. The process should be simple and reduced (AMA), have as less steps as possible and have no complexity, helping the impulsive user (Sabaitytfó and Davidaviçius, 2017)</p> <p>25. Automatic completion of possible campus on forms and voice completion</p>
<i>Need for help during the online process</i>	<p>26. Real time telephone helpline</p> <p>27. Chat bot to help with hard concepts and have pre-made questions that appear from specific problems</p> <p>28. Real time chat during working hours</p> <p><u>Additionally:</u></p> <p>29. Video calls (Karim, 2019), an online appointment to guide the process or video call help feature (bring the human contact to the virtual channel)</p> <p>30. Glossary or FAQ</p> <p>31. Creation of a help feature where it is possible check all the ways they can ask for help</p>
<i>Uncertainty caused by digital services (also important for the after service phase)</i>	<p>32. Send email, message or notification at the end of the service</p> <p>33. Provide estimated delivery time of documents or access codes</p> <p>34. Access to the status of the process (tracking)</p>

Additionally:

35. Link solutions with the user's personal software, for example if there are activities after ordering the service, possibility of adding them to e-calendar (Sabaitytfo and Davidavifcius, 2017)
-

Data privacy

36. Comply with GDPR
-

In our opinion, the listed recommendations for the pre-service phase and digital services of the customer journey should be explored as guidelines in order to improve the design of public services, mainly digital, for young citizens.

6 Conclusion and Future Research

This study, shows that the interaction of young citizens with public services can happen in different and complex ways. Furthermore, even with the problems that exist, young citizens have, and will continue to have, to use public services because there is no alternatives to perform those services.

Going back to the first research question, *Why are young citizens not using the digital public services and what are the drivers and inhibitors of the use of digital public services by them?* we reach the following conclusions:

- young citizens will sooner or later end up using the public services due to the emergence of some need. Nevertheless, when needed, we found that young citizens have a trend towards the digital channel;
- a significant number of participants had already experienced some interaction with digital public services (even that it was very specific and at one time only);
- overall, the young citizens consider that the initiative to start a process is not being taken by the Public Administration;
- the need to interact more often may not exist right now (due to, for example, the stage of life in which they are). This lack of need to interact with public services, presented by young citizens, consequently leads to digital services not being used by them, being identified as the main inhibitor;
- despite the recognized advantages of the digital services and some of the service channel choice factors presented by the participants that can act as drivers, such as the flexibility, the convenience, the affinity for technology and the less time involved, there are still problems associated with them, and other inhibitors like the difficulty of reaching what they are searching for online, the existence of doubts and insecurities, and in some cases even the type of process itself. Furthermore, even some advantages of the face-to-face services can harm the use of the digital services, namely: the easier clarification achieved; the security of how the process unfold; and the personalized attention of face-to-face services;
- there is a lack of awareness of the some digital platforms (like ePortugal) among the young citizens, which is negative because in the perspective of Carter et al. (2016), citizens knowing the e-government services and their benefits is vital for their adoption;
- despite the digital services being chosen by the majority as the preferred channel, we cannot forget that, according to the results of the study and Klier et al. (2015), even the younger citizens, that have a stronger online adoption preference, do not want only online channels;
- finally, this topic contributed to further understand the adoption of digital public services, this time by the young citizens segment.

Furthermore, this study allowed to conclude that to fight the doubts found among young citizens, they need to search for information, being found that the majority choose to do internet searches and ask to family members, which goes along with the perspective of Karim (2019). Regarding the format of the information presented, despite being found that there are participants that prefer more audio-visual content and images, strengthening the idea presented

by Sabaitytė and Davidavičius (2017) and Karim (2019), there are still participants that prefer text as the format of information, which indicates that, whenever possible, the information should be available in a mix of formats. Finally, it was found that to access to the digital channels both mobile and computer are used or considered to be used, which indicates that the platforms should be ready to be accessed efficiently by both devices.

Regarding the second research question, *How can public services, mainly digital services be designed for young citizens?*, we propose a cluster of recommendations (for different areas of intervention in moments before the actual use of the service and when interacting with digital services), mostly gathered from this study, but also retrieved from the literature, and ideas resulted from project team discussions, that may contribute to bring digital public services closer to the needs of young citizens. Some of the recommendations found in this study are similar to the general recommendations presented by Carter and Bélanger (2005), Shareef *et al.* (2011) and Susanto and Goodwin (2013). Moreover, when focusing on designing services particularly for young citizens, we can see that the results from this study fit, can be combined or add information to the recommendations presented by Karim (2019) and Sabaitytė and Davidavičius (2017).

Looking to all the problems uncovered by young citizens, we believe that some may be similar to other citizens' segments. Consequently, despite considering that some of the recommendations presented here are specific for the younger citizens segment, some suggestions may also improve the experience in other citizens' segments. This can indicate that the major difference for young citizens may be in the pre-service phase through the topic of communication and learning. Additionally, this topic of the pre-service is also important to fight some preconceived ideas that might exist, by showing to young citizens, through the right channels (like social media) that there are ways of dealing with public services related issues online and in a simpler way (like through ePortugal). Thus, a possible future research could be to investigate if the problems of the public services, mainly digital, are the same for other citizens' segments and if they provide similar recommendations. In this way, we could see if the recommendations found with young citizens are specific to them, derived from the increased use of various digital interfaces typical of young people. Furthermore, and regarding the future work of the project, the next steps should be the development of more co-design sessions, development of a low fidelity prototype of a public service related online page dedicated to young citizens and the possibility of further validating some of the insights found in this study in a questionnaire that one of the project partners is going to develop in a bigger scale.

As general conclusion, although young citizens are not the ones with higher needs of interaction with public services today, as Sabaitytė and Davidavičius (2017) presented, new generations will take up most of the society's structure, and the need to interact more it is going to appear. Therefore, digital public services should be adapted to be used young citizens, as well as creating content where they are today (like social media). This strategy may overcome the gap presented by Davies (2013), making the digital public services better used tomorrow, a perspective that AMA is already trying to adopt. However, it is important to note that Davies (2013) also defends that we should target minor changes to accommodate members of new segments, instead of completely change the way public services are being practiced. Nevertheless, this perspective should not invalidate that the young citizens' segment should be listened and involved, be aware of the different digital alternatives, and finally, that we must target for a better experience when young citizens have to interact with digital public services, adapting them for their needs and potentially addressing problems that are also faced by other citizens' segments.

References

- Abdellatif, A., Amor, N. B. & Mellouli, S. (2013). An intelligent framework for e-government personalized services. *The Proceedings of the 14th Annual International Conference on Digital Government Research*, 28(2), 120-126.
- AMA. (2016). Agência para a Modernização Administrativa. Retrieved from <https://www.ama.gov.pt/web/agencia-para-a-modernizacao-administrativa/eportugal> (Accessed: 8 of May 2020)
- Ansell, C. & Torfing, J. (2014). Collaboration and design: new tools for public innovation. In C. Ansell & J. Torfing (Eds.), *Public innovation through collaboration and design* (pp. 19-36).
- Anthopoulos, L. G., Siozos, P. & Tsoukalas, I. A. (2007). Applying participatory design and collaboration in digital public services for discovering and re-designing e-Government services. *Government Information Quarterly*, 24(4), 353-376.
- Araujo, R., Taher, Y., Van Den Heuvel, W. J. & Cappelli, C. (2013). *Evolving government-citizen ties in public service design and delivery*. Paper presented at the Electronic Government and Electronic Participation-Joint Proceedings of Ongoing Research of IFIP EGOV and IFIP ePart 2013. Bonn: Gesellschaft für Informatik e.V.
- Autenticação.gov. (2020). Chave Móvel Digital. Retrieved from <https://www.autenticacao.gov.pt/a-chave-movel-digital> (Accessed: 11 of April 2020)
- Bencsik, A., Horváth-Csikós, G. & Juhász, T. (2016). Y and Z Generations at Workplaces. *Journal of Competitiveness*, 8(3), 90 - 106.
- Berkup, S. B. (2014). Working with generations X and Y in generation Z period: Management of different generations in business life. *Mediterranean Journal of Social Sciences*, 5(19), 218-218.
- Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101.
- Cambridge, U. (Ed.) (2020) Cambridge Advanced Learner's Dictionary & Thesaurus. Cambridge University Press.
- Carter, L. & Bélanger, F. (2005). The utilization of e-government services: citizen trust, innovation and acceptance factors. *Information systems journal*, 15(1), 5-25.
- Carter, L., Weerakkody, V., Phillips, B. & Dwivedi, Y. K. (2016). Citizen adoption of e-government services: Exploring citizen perceptions of online services in the United States and United Kingdom. *Information Systems Management*, 33(2), 124-140.
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*: Sage publication.
- Corbin, J. & Strauss, A. (2014). *Basics of qualitative research: Techniques and procedures for developing grounded theory*: Sage publications.
- Cox, M. D., Green, L., Borodako, K. & Sangiorgi, D. (2015). Designing for public sector innovation in the UK: design strategies for paradigm shifts. *Foresight*, 17(4), 332-348.
- Creswell, J. W. & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches* (Fourth ed.): Sage publications.
- Davies, T. (2013). Remédier au déficit de participation dans un monde en ligne. In P. M. Nicolas Matyjasik (Ed.), *Génération Y et gestion publique : quels enjeux ?* (pp. 30-54): Institut de la gestion publique et du développement économique, Comité pour l'histoire économique et financière de la France.
- Dias Fonseca, T. (2019). The internet as a global playground: young citizens and informal spaces of agency, a Portuguese case study. *Mind, Culture, and Activity*, 26(4), 353-370.
- Dimock, M. (2019). Defining generations: Where Millennials end and Generation Z begins. *Pew Research Center*, 17, 1-7.
- ePortugal. (2020). Sobre o ePortugal. Retrieved from <https://eportugal.gov.pt/sobre> (Accessed: 30 of April 2020)
- European.C. (2019). *Digital Economy and Society Index (DESI) - 2019 Country Report - Portugal*. Retrieved from <https://ec.europa.eu/digital-single-market/en/scoreboard/portugal>

- Evans, A. M. & Gomes, R. G. (2017). *The role of digital literacy in citizens' adoption of digital public services: The Portuguese case*. Paper presented at the Proceedings of 17th European Conference on Digital Government, ECDG Lisbon, Portugal.
- Følstad, A. & Kvale, K. (2018). Customer journeys: a systematic literature review. *Journal of Service Theory and Practice*, 28(2), 196-227.
- Fontana, A. & Frey, J. H. (2000). The interview: From structured questions to negotiated text. *Handbook of qualitative research*, 2(6), 645-672.
- Gibbons, S. (2017). UX Mapping Methods Compared: A Cheat Sheet. Retrieved from <https://www.nngroup.com/articles/ux-mapping-cheat-sheet/> (Accessed: 29 of April 2020)
- Goodsell, C. T. (1981). *The public encounter: Where state and citizen meet*: Indiana University Press.
- Grenha Teixeira, J., Patrício, L., Huang, K.-H., Fisk, R. P., Nóbrega, L. & Constantine, L. (2017). The MINDS method: integrating management and interaction design perspectives for service design. *Journal of Service Research*, 20(3), 240-258.
- Harris, A. (2016). Young people, politics and citizenship. In A. Furlong (Ed.), *Routledge Handbook of Youth and Young Adulthood* (2nd ed., pp. 295-307): Routledge.
- Holmlid, S. & Evenson, S. (2008). Bringing service design to service sciences, management and engineering. In *Service science, management and engineering education for the 21st century* (pp. 341-345): Springer.
- IPDJ. (nd). Rede Ponto Já. Retrieved from <https://www.juventude.gov.pt/IPJ/OndeEstamos/PONTOJA/Paginas/PONTOJA.aspx> (Accessed: 13 of April 2020)
- Karakiza, M. (2015). The impact of social media in the public sector. *Procedia-Social and Behavioral Sciences*, 175(0), 384-392.
- Karim, M. R., E; Walker, J. (2019). *DesYIgn - Innovative Youth Information design and outreach*. Retrieved from ERYICA - The European Youth Information and Counselling Agency
- Klier, J., Pflieger, R. & Thiel, L. (2015). *Just Digital or Multi-Channel? The Preferences of E-Government Service Adoption by Citizens and Business Users*. Paper presented at the Proceedings of the 12th International Conference on Wirtschaftsinformatik, Osnabrück, Germany.
- Koos. (nd). Customer Journey Mapping. Retrieved from <https://www.koos servicedesign.com/tool/service-design-customer-journey-mapping/> (Accessed: 28 of May 2020)
- Krøtel, S. M. L. (2019). Digital Communication of Public Service Information and its Effect on Citizens' Perception of Received Information. *International Journal of Public Administration*, 1-14.
- Lindgren, I., Madsen, C. Ø., Hofmann, S. & Melin, U. (2019). Close encounters of the digital kind: A research agenda for the digitalization of public services. *Government Information Quarterly*, 36(3), 427-436.
- Meroni, A. & Sangiorgi, D. (2011). *Design for services*: Gower Publishing, Ltd.
- Myers, M. D. & Newman, M. (2007). The qualitative interview in IS research: Examining the craft. *Information and organization*, 17(1), 2-26.
- Opromolla, A., Volpi, V., Pollini, A., Verioli, A., Mesenzani, M. & Medaglia, C. M. (2017). Citizen involvement in public services design: The spac3 case study. *International Journal of Public Administration in the Digital Age (IJPADA)*, 4(4), 34-50.
- Osborne, S. P., Radnor, Z. & Nasi, G. (2013). A new theory for public service management? Toward a (public) service-dominant approach. *The American Review of Public Administration*, 43(2), 135-158.
- Ostrom, A. L., Bitner, M. J., Brown, S. W., Burkhard, K. A., Goul, M., Smith-Daniels, V., . . . Rabinovich, E. (2010). Moving forward and making a difference: research priorities for the science of service. *Journal of Service Research*, 13(1), 4-36.

- Patrício, L. & Fisk, R. P. (2013). Creating new services. In R. R. B. Raymond P. Fisk, Lloyd C. Harris (Ed.), *Serving Customers: Global Services Marketing Perspectives* (pp. 185-207): Tilde University Press.
- Patrício, L., Fisk, R. P., Falcão e Cunha, J. & Constantine, L. (2011). Multilevel service design: from customer value constellation to service experience blueprinting. *Journal of Service Research*, 14(2), 180-200.
- Polaine, A., Løvlie, L. & Reason, B. (2013). *Service design: From insight to inspiration*: Rosenfeld media.
- R.Portuguesa. (2019). Governo apresenta novo portal de serviços públicos: o ePortugal. Retrieved from <https://www.portugal.gov.pt/pt/gc21/comunicacao/noticia?i=governo-apresenta-novo-portal-de-servicos-publicos> (Accessed: 27 of March 2020)
- Reddick, C. G. (2005). Citizen interaction with e-government: From the streets to servers? *Government Information Quarterly*, 22(1), 38-57.
- Sabaitytė, J. & Davidavičius, S. (2017). Challenges and solutions of adopting public electronic services for the needs of Z generation. *International journal of learning and change*, 9(1), 17-28.
- Sanders, E. B.-N. & Stappers, P. J. (2008). Co-creation and the new landscapes of design. *Co-design*, 4(1), 5-18.
- Santos, F. M. d. (2019). O que é um serviço público, e que tipos de serviços públicos existem? Retrieved from <https://www.direitosedeveres.pt/q/o-cidadao-o-estado-e-as-instituicoes-internacionais/servicos-publicos/o-que-e-um-servico-publico-e-que-tipos-de-servicos-publicos-existem> (Accessed: 9 of April 2020)
- Seemiller, C. & Grace, M. (2016). *Generation Z goes to College*: Jossey-Bass.
- Shareef, M. A., Kumar, V., Kumar, U. & Dwivedi, Y. K. (2011). e-Government Adoption Model (GAM): Differing service maturity levels. *Government Information Quarterly*, 28(1), 17-35.
- Simmons, R., Birchall, J. & Prout, A. (2011). User Involvement in Public Services: ‘Choice about Voice’. *Public Policy and Administration*, 27(1), 3-29.
- Simmons, R. & Brennan, C. (2017). User voice and complaints as drivers of innovation in public services. *Public Management Review*, 19(8), 1085-1104.
- Singh, A. (2014). Challenges and issues of Generation Z. *IOSR Journal of Business and Management*, 16(7), 59-63.
- Smith, N., Lister, R., Middleton, S. & Cox, L. (2005). Young people as real citizens: Towards an inclusionary understanding of citizenship. *Journal of youth studies*, 8(4), 425-443.
- Steen, M., Manschot, M. & De Koning, N. (2011). Benefits of co-design in service design projects. *International Journal of Design*, 5(2), 53-60.
- Susanto, T. D. & Goodwin, R. (2013). User acceptance of SMS-based e-government services: Differences between adopters and non-adopters. *Government Information Quarterly*, 30(4), 486-497.
- Tomé, R. & Teixeira, J. A. (2014). *Portuguese Public Services: Past experiences and new trends in management*. Paper presented at the 54th Congress of the European Regional Science Association: "Regional development & globalisation: Best practices", St. Petersburg, Russia.
- Trischler, J. & Scott, D. R. (2016). Designing Public Services: The usefulness of three service design methods for identifying user experiences. *Public Management Review*, 18(5), 718-739.
- U.Nations. (2018a). 2018 UN E-Government Survey. Retrieved from <https://www.un.org/development/desa/publications/2018-un-e-government-survey.html> (Accessed: 11 of May 2020)
- U.Nations. (2018b). *e-Government Survey data - EGDI*. Retrieved from <https://drive.google.com/file/d/1FZT5zDfTa-ejvPh9c1Zu1w51DoMOefw1/view> (Accessed: 14 of May 2020)

- van der Bijl-Brouwer, M. (2016). *The challenges of human-centred design in a public sector innovation context*. Paper presented at the 50th Design Research Society International Conference, Brighton, UK.
- Wihlborg, E., Hedström, K. & Larsson, H. (2017). *E-government for all—Norm-critical perspectives and public values in digitalization*. Paper presented at the Proceedings of the 50th Hawaii International Conference on System Sciences, Hawaii, USA.
- Williams, K. C. & Page, R. A. (2011). Marketing to the generations. *Journal of Behavioral Studies in Business*, 3(1), 37-53.

APPENDIX A: Study participants**AMA's representatives Participants**

Participant	Working areas
PA1, PA2, PA3	Authentication, Business Services, Contents and services to the citizen in ePortugal

Young Citizens Participants

Participant	District	Region	Age	Gender	Occupation
P1	Faro	Algarve	23	F	Working student
P2	Beja	Alentejo	23	M	Student
P3	Viseu	Centre	20	M	Student
P4	Madeira	Islands	23	F	Working student
P5	Porto	North	23	F	Student
P6	Viana Castelo	North	23	M	Student
P7	Porto	North	20	F	Student
P8	Porto	North	25	F	Worker
P9	Beja	Alentejo	24	F	Worker
P10	Coimbra	Centre	20	F	Student
P11	Lisboa	Lisbon region	18	M	Student
P12	Coimbra	Centre	21	F	Student
P13	Santarém	Centre	25	M	Unemployed
P14	Porto	North	25	F	Student
P15	Lisboa	Lisbon region	24	F	Worker
P16	Castelo Branco	Centre	24	F	Student
P17	Coimbra	Centre	21	F	Working student
P18	Porto	North	24	M	Worker
P19	Porto	North	24	F	Working student
P20	Braga	North	25	F	Worker
P21	Vila Real	North	18	F	Other
P22	Viana Castelo	North	25	F	Worker
P23	Porto	North	19	M	Other
P24	Porto	North	25	F	Worker
P25	Porto	North	18	F	Student
P26	Aveiro	Centre	18	M	Student
P27	Beja	Alentejo	25	M	Worker
P28	Açores	Islands	20	M	Student
P29	Porto	North	18	F	Student
P30	Porto	North	18	M	Student

Total time of recordings: 8h03

APPENDIX B: Services available in ePortugal interesting for young citizens
Queres criar a tua primeira conta no Banco?

Serviços existentes	-		
Evento de vida eportugal		Não	
Guia e-portugal		Não	

Perdeste ou roubaram a tua carteira?

Serviços existentes	Substituir documentos no balcão Perdi a Carteira (+18) Apresentar uma queixa-crime à Polícia Judiciária	Por telefone Realizar Agora	18 nd
Evento de vida eportugal		Não	
Guia e-portugal		Não	

Precisas de tirar o passe de transporte?

Serviços existentes	-		
Evento de vida eportugal		Não	
Guia e-portugal		Não	

Vais estudar para fora do teu país?

Serviços existentes	Requerer o Cartão Europeu de Seguro de Doença da Segurança Social Renovar o cartão europeu de Seguro de Doença da Segurança Social Realizar a inscrição no Consulado de Portugal no estrangeiro Registar para proteção no estrangeiro Realizar a inscrição no Recenseamento eleitoral no estrangeiro Pedir o passaporte temporário para o cidadão português residente no estrangeiro Conhecer os avisos e documentação necessária para residir e trabalhar no estrangeiro Emitir o Passaporte Eletrónico Português no estrangeiro Substituir o Passaporte Eletrónico Português no estrangeiro	Realizar Agora Realizar Agora Info Info Info Info Realizar Agora Info Info	nd nd nd nd 17 nd nd 18 presen ou acompanhado 18 presen ou acompanhado
Evento de vida eportugal		Não	
Guia e-portugal		Não	

Queres ter a tua casa?

Serviços existentes	Candidatar-se ao Porta 65-Jovem Fazer simulação de Crédito à Habitação Solicitar a mediação do crédito Pedir esclarecimentos e Informações sobre crédito	Realizar Agora Realizar Agora Info Info	18-35 nd nd nd
Evento de vida eportugal	Sim, mas não para jovens (casa)		
Guia e-portugal	Não		

Queres criar a tua empresa?

Serviços existentes	Pedir o Certificado de Admissibilidade de Firma ou Denominação Pedir registo comercial Criar uma empresa Realizar Agora Pedir inscrição Realizar Agora no Ficheiro Central de Pessoas Coletivas para entidades não sujeitas a registo comercial Criar uma associação na hora Criar uma empresa na hora Constituir Sociedade Comercial - Contrato de Sociedade Contactar o Serviço de Informação à Empresa	Realizar Agora Realizar Agora Realizar Agora Realizar Agora Realizar Agora Info Realizar Agora Info	nd nd nd nd nd nd nd nd
Evento de vida eportugal	Sim, mas não apenas para criação		
Guia e-portugal	Não		

Morreu um familiar?

Serviços existentes	Obter Informações sobre a pensão de orfandade Realizar uma habilitação de herdeiros - Herança Realizar a Habilitação de Herdeiros, Partilha e Registo dos bens Pedir habilitação de herdeiros e registo Requerer o subsídio por morte Consultar registos de atividade funerária Pedir a partilha e registo da herança Requerer o subsídio de funeral Requerer a pensão de sobrevivência Requerer o reembolso das despesas de funeral	Info Info Info Info Info Realizar Agora Info Info Info Realizar Agora	até 18 nd nd nd nd nd nd nd nd nd
Evento de vida eportugal	sim (quase todos os serviços poderiam ser usados por jovens)		
Guia e-portugal	Sim		

Perdeste o emprego?

Serviços existentes	Requerer o subsídio de desemprego Procurar formação profissional Requerer a isenção do pagamento de contribuições para a Segurança Social Procurar apoios para conseguir um emprego Simular o valor a receber no final do contrato de trabalho Pedir Informações sobre os serviços e apoios do IIEFP no âmbito do Emprego Pedir Proteção jurídica Inscrever-se no centro de emprego Requerer o subsídio social de desemprego Obter Informações sobre o subsídio de desemprego parcial Obter Informações sobre o subsídio parcial por cessação de atividade	Info Realizar Agora Realizar Agora Info Realizar Agora Realizar Agora Info Realizar Agora Info Realizar Agora Info	nd nd nd nd nd nd nd 16 nd nd nd
Evento de vida eportugal	Sim (bastante completo, poderia ser igual)		
Guia e-portugal	Não		

Vais ter uma criança?

Serviços existentes	Requerer o abono de família pré-natal	Info	nd
	Requerer o subsídio social por interrupção da gravidez	Realizar Agora	nd
	Marcar consulta de planeamento familiar	Info	nd

Evento de vida eportugal Sim (bastante completo, poderia ser igual)

Guia e-portugal Sim

Propostas

Precisas de apoios financeiros?

Serviços existentes	Requerer apoios sociais para crianças e jovens	Info	nd
	Requerer o abono de família para crianças e jovens	Info	18 ou acompnha
	Obter Informações sobre a pensão de orfandade	Info	até 18
	Requerer a bonificação por deficiência do abono de família para crianças e jovens	Info	nd
	Candidatar-se a uma bolsa de estudo para o ensino superior	Realizar Agora	nd
	Requerer o subsídio de Educação Especial	Realizar Agora	nd
	Obter Informações sobre a Bolsa de Estudo (Segurança Social)	Info	até 18
	Bolsa de estudo - prova escolar (ensino secundário)	Realizar Agora	até 18
	Pedir abono de família para crianças e jovens - prova escolar	Realizar Agora	nd

Evento de vida eportugal Sim (mas dentro de cada categoria)

Guia e-portugal Não

Queres começar a trabalhar?

Serviços existentes	Simular e entregar a declaração anual do IRS	Realizar Agora	nd
	Abrir atividade nas finanças	Realizar Agora	nd
	Procurar apoios para conseguir um emprego	Info	nd
	Pedir Informações sobre os serviços e apoios do IEFP no âmbito do Emprego	Realizar Agora	nd
	Procurar emprego	Realizar Agora	nd
	Inscriver-se no centro de emprego	Realizar Agora	16
	Obter Informações sobre a inscrição/comunicação de início de atividade de trabalhadores por conta de outrem	Info	nd
	Pedir equivalência de habilitações nacionais do ensino básico e secundário	Info	nd
	Obter Informações sobre direitos e deveres do trabalhador	Info	nd
	Realizar queixa sobre o recrutamento discriminatório	Realizar Agora	nd
	Obter as Estatísticas e Indicadores - Emprego e Formação Profissional	Realizar Agora	nd
	Consultar as estatísticas e indicadores de emprego e formação profissional	Realizar Agora	nd

Evento de vida eportugal Não (tem um evento de vida trabalhar mas não específico de começar a trabalhar)

Guia e-portugal Não

Vais começar a votar?

Serviços existentes	Saber onde votar	Realizar Agora	18
	Realizar inscrição no recenseamento eleitoral no estrangeiro	Info	17
	Obter Informação para o eleitor	Realizar Agora	nd/18

Evento de vida eportugal Não

Guia e-portugal Sim

Precisas de algo relacionado com a Saúde?

Serviços existentes	Requerer o subsídio de Educação Especial	Realizar Agora	nd
	Marcar uma consulta no centro de saúde	Realizar Agora	nd
	Mudar de centro de saúde	Info	nd
	Renovar o cartão de beneficiário da ADSE para estudantes entre os 18 e os 26 anos	Realizar Agora	18-26
	Realizar pesquisa Realizar Agora de farmácias	Realizar Agora	nd
	Pesquisar serviços que dispensam medicamentos ao domicílio ou através da internet	Realizar Agora	nd
	Realizar pesquisa de medicamentos	Realizar Agora	nd
Marcar consulta de planeamento familiar	Info	nd	

Evento de vida eportugal Sim (geral Saúde)

Guia e-portugal Não

Queres inscrever-te na escola? Início do ano letivo?

Serviços existentes	Obter Informações sobre a Bolsa de Estudo (Segurança Social)	Info	até 18
	Requerer o subsídio de Educação Especial	Realizar Agora	nd
	Bolsa de estudo - prova escolar (ensino secundário)	Realizar Agora	até 18
	Pedir abono de família para crianças e jovens - prova escolar	Realizar Agora	nd
	Consultar o Roteiro das Escolas	Realizar Agora	nd

Evento de vida eportugal Sim (Educação dividido em categorias)

Guia e-portugal Não

Vais entrar na Faculdade?

Serviços existentes	Candidatar-se a uma bolsa de estudo para o ensino superior	Realizar Agora	nd
	Obter Informações sobre as provas de acesso ao ensino superior	Realizar Agora	nd
	Substituir as provas de ingresso ao ensino superior por exames estrangeiros	Realizar Agora	nd
	Consultar a lista de cursos do ensino superior	Realizar Agora	nd
	Pedir documentos relacionados com a candidatura ao ensino superior	Realizar Agora	nd
	Simular a candidatura ao ensino superior	Realizar Agora	nd
	Pedir a senha para a candidatura ao ensino superior	Realizar Agora	nd
	Candidatar-se ao ensino superior	Realizar Agora	nd
	Aceder ao assistente de escolha de curso para o acesso ao ensino superior	Realizar Agora	nd
	Inscrições no Programa de Atividade Física e Desportiva Orientada	Info	nd
	Pedir Informações sobre o acesso ao ensino superior para emigrantes	Info	nd

Evento de vida eportugal Sim (dentro da Educação tem ensino superior bastante completo poderia ser igual)

Guia e-portugal Não

Precisas de tratar de Documentos?

Serviços existentes	Renovar CC	Realizar Agora	25
	Alterar morada CC	Realizar Agora	12
	Ativar chave móvel digital	Realizar Agora	nd
	Agendar um serviço relacionado com o CC	Realizar Agora	nd
	Aceder à bolsa de documentos	Info	nd
	Pedir uma segunda via da carta PIN	Info	nd
	Substituir documentos no balcão Perdi a Carteira (+18)	Por telefone	18
	Substituir a carta de condução	Realizar Agora	nd
	Cancelar o CC	Realizar Agora	nd
	Pedir CC provisório	Info	nd
	Pedir Passaporte eletrónico português	Info	18 presen ou acompanhado
	Pedir substituição do Passaporte eletrónico português	Info	18 presen ou acompanhado
	Agendar serviço relacionado com passaporte	Realizar Agora	qq que possa pedir
	Requerer o Cartão Europeu de Seguro de Doença da Segurançã Social	Realizar Agora	nd
	Renovar o cartão europeu de Seguro de Doença da Segurançã Social	Realizar Agora	nd
	Pedir o cartão Europeu de Seguro de Doença da ADSE	Realizar Agora	nd

Evento de vida eportugal Não (tem dentro de Ao longo da vida mas não específico para jovens)
Guia e-portugal Não

Queres tirar a carta?

Serviços existentes	Tirar a carta de condução	Info	depende da catego.
	Pedir a segunda via da carta de condução	Realizar Agora	nd
	Substituir a carta de condução	Realizar Agora	nd

Evento de vida eportugal Não
Guia e-portugal Não

Queres fazer uma viagem?

Serviços existentes	Pedir Passaporte eletrónico português	Info	18 presen ou acompanhado
	Pedir substituição do Passaporte eletrónico português	Info	18 presen ou acompanhado
	Agendar serviço relacionado com passaporte	Realizar Agora	qq que possa pedir
	Requerer o Cartão Europeu de Seguro de Doença da Segurançã Social	Realizar Agora	nd
	Renovar o cartão europeu de Seguro de Doença da Segurançã Social	Realizar Agora	nd
	Pedir o cartão Europeu de Seguro de Doença da ADSE	Realizar Agora	nd
	Emitir o Passaporte Eletrónico Português no estrangeiro	Info	18 presen ou acompanhado
	Substituir o Passaporte Eletrónico Português no estrangeiro	Info	18 presen ou acompanhado
	Fazer reserva em Pousadas da Juventude	Realizar Agora	nd
	Pedir Informação sobre viagem ao estrangeiro	Info	nd
	Registar para proteção no estrangeiro	Info	nd
	Pedir Informações sobre saída de menor do território nacional	Realizar Agora	nd

Evento de vida eportugal Sim (dentro do lazer)
Guia e-portugal Sim

Vives ou queres ir viver para fora de Portugal?

Serviços existentes	Requerer o Cartão Europeu de Seguro de Doença da Segurançã Social	Realizar Agora	nd
	Renovar o cartão europeu de Seguro de Doença da Segurançã Social	Realizar Agora	nd
	Procurar vagas de trabalho disponíveis no portal "Carreiras Internacionais"	Realizar Agora	nd
	Trabalhar no estrangeiro	Realizar Agora	nd
	Realizar a inscrição no Consulado de Portugal no estrangeiro	Info	nd
	Pedir o Certificado de residência para Cidadão português residente no estrangeiro	Info	nd
	Registar para proteção no estrangeiro	Info	nd
	Pedir o Cartão de Cidadão para portugueses residentes no estrangeiro	Info	12 presenc
	Realizar a inscrição no Recenseamento eleitoral no estrangeiro	Info	17
	Pedir o passaporte temporário para o cidadão português residente no estrangeiro	Info	nd
	Obter Informação de apoio ao emigrante	Info	nd
	Conhecer os avisos e documentação necessária para residir e trabalhar no estrangeiro	Realizar Agora	nd
	Emitir o Passaporte Eletrónico Português no estrangeiro	Info	18 presen ou acompanhado
	Substituir o Passaporte Eletrónico Português no estrangeiro	Info	18 presen ou acompanhado
	Consultar as associações das Comunidades Portugueses	Realizar Agora	nd

Evento de vida eportugal Sim (e ainda tem mais serviços)
Guia e-portugal Sim
Kit Emigrante Sim

Queres casar ou viver em união de Afacto?

Serviços existentes	Iniciar Processo de Casamento	Realizar Agora	16
	Pedir uma Certidão de Casamento	Realizar Agora	16
	Pedir certidão de registo civil	Realizar Agora	16
	Iniciar o processo de Casamento no estrangeiro	Info	16
	Realizar o processo de transcrição do assento de Casamento no estrangeiro	Info	16

Evento de vida eportugal Sim
Guia e-portugal Sim

APPENDIX C: Script for AMA representatives' interviews

- Na sua perspetiva pessoal e do trabalho que desenvolve, quais os maiores desafios que se encontram no desenvolvimento e disponibilização de serviços públicos digitais?
- Do seu conhecimento, o que tem sido feito por parte da Administração Pública, e em particular pela AMA, para promover a adoção dos serviços digitais do Estado especificamente para a população mais jovem?
- Na sua perspetiva, que tipo de soluções ou iniciativas poderiam ser levadas a cabo para a adoção dos serviços digitais do Estado junto da população mais jovem?

APPENDIX D: Informed consents

CONSENTIMENTO PARA PARTICIPAÇÃO EM INVESTIGAÇÃO, Representantes da AMA

A *Associação Fraunhofer Portugal Research*, em parceria com o Laboratório de Experimentação da Administração Pública (LabX), pretende realizar um estudo de investigação sobre os desafios emergentes ou prementes dos serviços públicos na sua relação com os cidadãos jovens a entrar em idade adulta, tendo como objetivo a apresentação de uma proposta de resolução para o(s) mesmo(s).

No âmbito deste estudo, a *Associação Fraunhofer Portugal Research* pretende levantar, junto dos stakeholders internos da AMA, informação acerca dos atuais serviços digitais do Estado e respetivas vantagens e desafios encontrados, tendo como último objetivo a identificação de oportunidades de melhoria.

Objetivo do estudo

O estudo pretende identificar áreas de oportunidade para o Estado melhorar a sua relação com os jovens a entrar em idade adulta.

Materiais usados

A recolha de informação será realizada através de mensagens enviadas por Email.

Irá pedir-se também que os participantes forneçam dados necessários à caracterização da amostra, para futura descrição do trabalho de recolha de informação. Nomeadamente: Profissão atual e Filiação.

A recolha de dados será da responsabilidade dos representantes do LabX da AMA.

Tratamento dos dados

Os seus dados pessoais serão analisados pelos investigadores e destruídos no final do estudo, sendo confidenciais. A *Associação Fraunhofer Portugal Research* tomará todas as medidas necessárias à salvaguarda e proteção dos dados recolhidos por forma a evitar que venham a ser acedidos por terceiros não autorizados.

Gostaríamos de contar com a sua participação, a qual não envolve qualquer prejuízo ou dano material e não haverá lugar a qualquer pagamento. O material necessário para este estudo será fornecido pelo LabX da AMA.

A sua participação é voluntária. Também poderá pedir a retificação ou destruição da informação recolhida a qualquer momento. Agradecemos muito o seu contributo, fundamental para a nossa investigação!

O/A participante:

*Declaro ter lido e compreendido este documento, bem como as informações verbais fornecidas e aceito participar nesta investigação. Permito a utilização dos dados que forneço de forma voluntária, confiando que apenas serão utilizados para investigação e com as garantias de confidencialidade e anonimato que me são dadas pelo investigador. Autorizo a comunicação de dados de forma **anónima** a outras entidades que estabeleçam parceria com a Associação Fraunhofer Portugal Research para fins académicos e de investigação científica, nomeadamente o Laboratório de Experimentação da AMA.*

Nome do participante: _____

Assinatura: _____ Data ___ / ___ / _____

Nome do participante: _____

Assinatura: _____ Data ___ / ___ / _____

Investigadores responsáveis pelo estudo:

Associação Fraunhofer Portugal Research, Cristiana Braga •

Assinatura: _____

Laboratório de Experimentação da Administração Pública, Jorge Lagarto •

Assinatura: _____

CONSENTIMENTO PARA PARTICIPAÇÃO EM INVESTIGAÇÃO, Jovens Cidadãos

A Associação *Fraunhofer Portugal Research*, em parceria com o Laboratório de Experimentação da Administração Pública (LabX), pretende realizar um estudo de investigação sobre os desafios emergentes ou prementes dos serviços públicos na sua relação com os cidadãos jovens a entrar em idade adulta, tendo como objetivo a apresentação de uma proposta de resolução para o(s) mesmo(s).

No âmbito deste estudo, a Associação *Fraunhofer Portugal Research* pretende levantar, junto dos jovens, informação relativa a (i) quais os momentos/necessidades de vida pelos quais os jovens passam, envolvendo a interação com serviços públicos do Estado, (ii) os serviços públicos que estão envolvidos nesses eventos e (iii) quais os eventos de vida mais relevantes na perspetiva dos jovens, para posterior análise.

Objetivo do estudo

O estudo pretende identificar áreas de oportunidade para o Estado melhorar a sua relação com os jovens a entrar em idade adulta.

Materiais usados

Para fins de tratamento da informação recolhida, será usado um gravador áudio, que facilitará a recuperação da informação prestada pelo participante da entrevista individual.

Irá pedir-se também que os participantes da sessão forneçam dados necessários à caracterização da amostra, para futura descrição do trabalho de recolha de informação. Nomeadamente: Idade (grupo de idades), Género, Zona de Residência, Ocupação atual.

A recolha de dados será da responsabilidade do investigador.

Tratamento dos dados

Os seus dados pessoais serão analisados pelos investigadores e destruídos no final do estudo, sendo confidenciais. A Associação *Fraunhofer Portugal Research* tomará todas as medidas necessárias à salvaguarda e proteção dos dados recolhidos por forma a evitar que venham a ser acedidos por terceiros não autorizados.

Gostaríamos de contar com a sua participação, a qual não envolve qualquer prejuízo ou dano material e não haverá lugar a qualquer pagamento. O material necessário para este estudo será fornecido pelo Investigador. A sua participação é voluntária, podendo em qualquer altura cessá-la sem qualquer tipo de consequência. Também poderá pedir a retificação ou destruição da informação recolhida a qualquer momento. Agradecemos muito o seu contributo, fundamental para a nossa investigação!

O/A participante:

Declaro ter lido e compreendido este documento, bem como as informações verbais fornecidas e aceito participar nesta investigação. Permito a utilização dos dados que forneço de forma voluntária, confiando que apenas serão utilizados para investigação e com as garantias de confidencialidade e anonimato que me são dadas pelo investigador. Autorizo a comunicação de dados de forma anónima a outras entidades que estabeleçam parceria com a Associação *Fraunhofer Portugal Research* para fins académicos e de investigação científica, nomeadamente o Laboratório de Experimentação da AMA.

Nome do participante: _____

Assinatura: _____ Data ___ / ___ / _____

Investigadores responsáveis pelo estudo:

Associação *Fraunhofer Portugal Research*, Cristiana Braga •

Assinatura: _____

Laboratório de Experimentação da Administração Pública, Jorge Lagarto •

Assinatura: _____

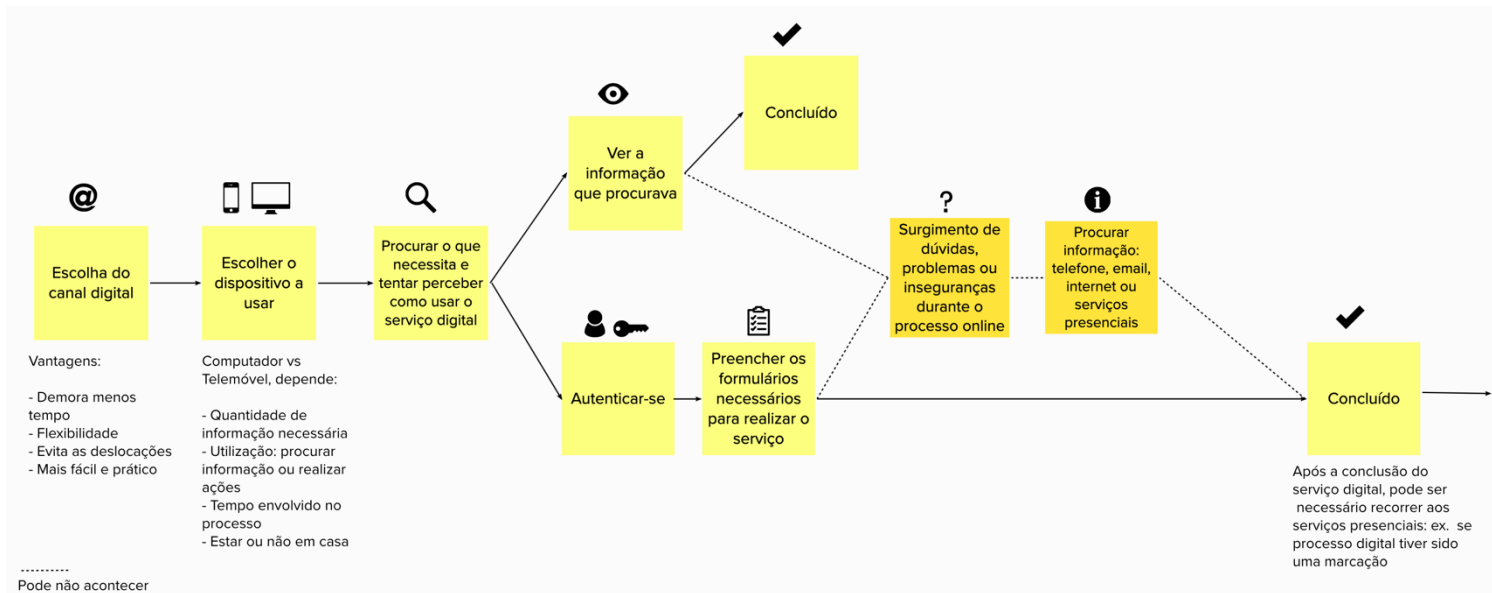
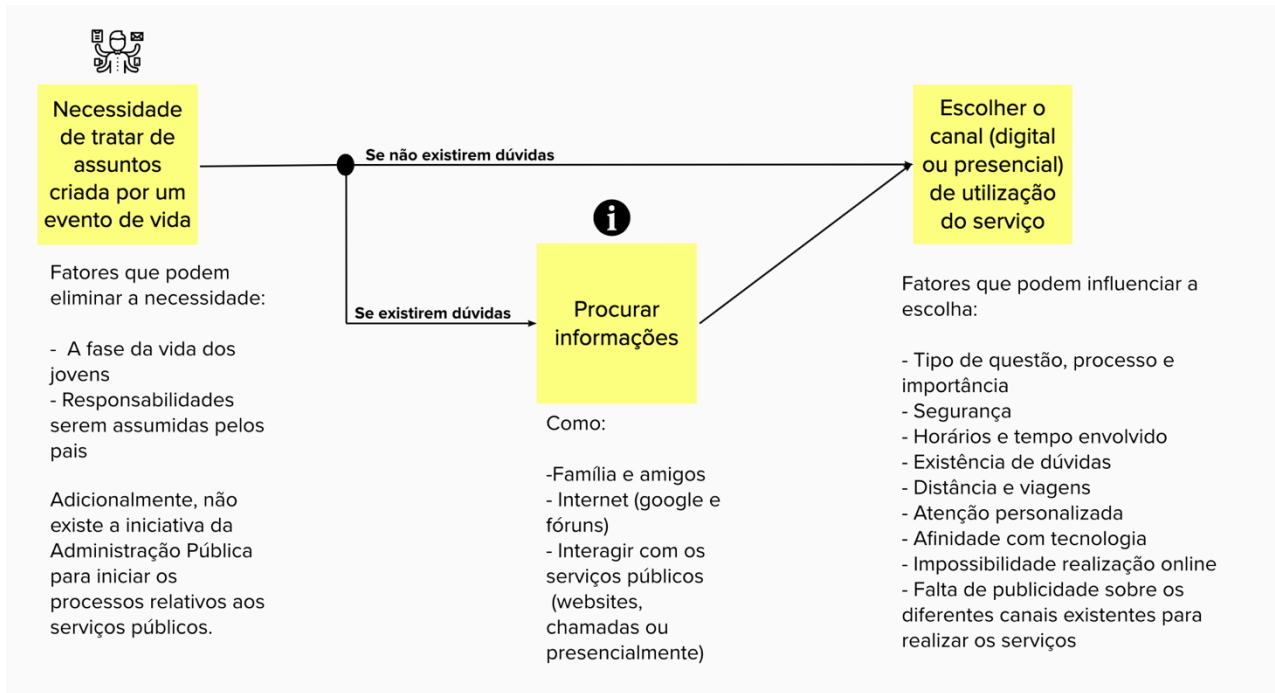
APPENDIX E: Script for young citizens interviews

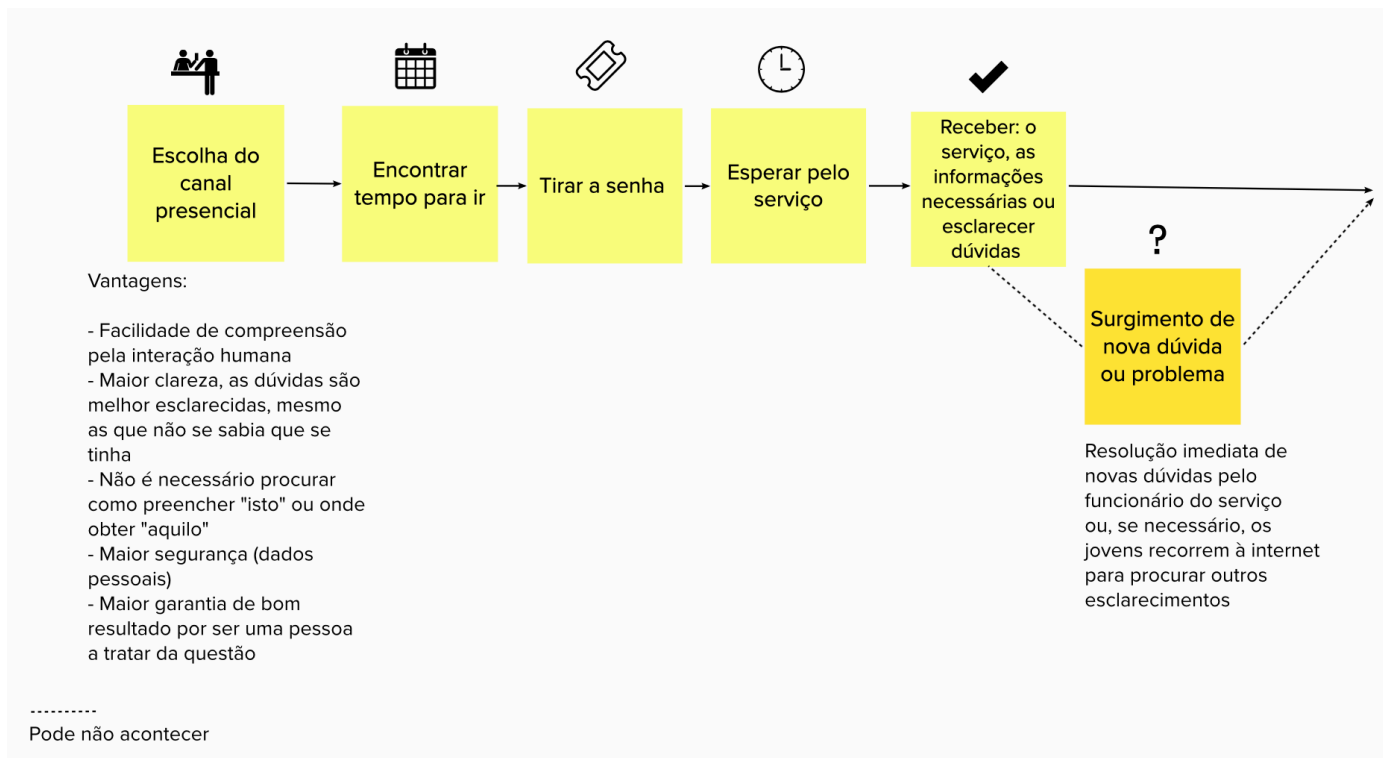
- Explicar o conceito
- Informar uso do gravador e pedir consentimento
- Gostava que me contasses a última vez que tiveste de interagir com serviços públicos?
 - Como foi essa experiência
 - Processos
 - Problemas
 - Como é que ultrapassaste esses problemas?
- Lembraste de mais momentos que passaste e que envolviam a interação com os serviços públicos?
 - Segurança social, IRN, Finanças, IEFP
 - Como por exemplo começar a trabalhar, votar, estudar fora, tratar de documentos, candidatar a faculdade...
 - Mais exemplos:
 - Tirar a carta condução
 - CC
 - Marcar consulta Centro Saúde
 - Escola/Faculdade
 - Votar
 - Erasmus

Passando agora para os serviços digitais

- Conheces a plataforma ePortugal? Já usaste?
 - O que pensas que é?
- E a Chave móvel digital? Conhecimento, experiência
- Como é que geralmente no teu dia a dia gostas de te autenticar nos serviços, aplicações e sites que usas?
 - Passwords
 - Impressão digital
- Conheces outros serviços digitais? Quais?
- Se existisse a possibilidade de os serviços serem fornecidos de forma digital continuarias a preferir/usar presenciais? Porquê?
 - Quais os fatores que poderiam influenciar essa tua escolha?
- No teu dia a dia como é que gostas/preferes de interagir com os serviços que usas?
 - Apps vs websites
- Tens acesso a computador em casa?
- Imagina que querias procurar alguma coisa ou tratar de algum assunto relacionado com estes serviços públicos, usavas mais o que? Usas mais telemóvel ou computador?
 - Porquê?
 - Já sentiste alguma dificuldade por estares a aceder através do telemóvel?
- Imagina agora que tinhas uma dúvida, ou querias procurar alguma informação relativa a estes serviços, qual seria o teu primeiro passo?
 - Onde recorrias?
 - Recorrias a alguém?
- E da forma como a informação é apresentada, existe alguma forma que tenhas preferência? Textos, vídeos, imagens....
- E em relação à linguagem dos sites?
 - Alguma opinião
 - Problema
- Segues ou conheces alguma rede social do estado/serviços públicos?

APPENDIX F: Simplified version of the customer journey





Recepção de notificações, documentos oficiais ou códigos

Pode acontecer que, depois de satisfeitas as necessidades criadas pelo evento de vida, os jovens cidadãos não tenham a necessidade de interagir com os serviços públicos num futuro próximo

APPENDIX G: Plan of the co-design session

Trabalho prévio

Anteriormente à elaboração desta sessão foram realizadas 3 entrevistas por email com representantes da AMA e 30 entrevistas com jovens cidadãos, onde foram recolhidas e analisadas diversas informações, como quais os momentos que os levaram a interagir com os serviços públicos, como foram essas interações, problemas encontrados e que pensam existir, algumas preferências de interação com os serviços, entre outras. Posteriormente foi mapeada a *Customer Journey* atual da interação dos jovens com os serviços públicos.

Adicionalmente, foi elaborado um questionário com os participantes das entrevistas onde os problemas encontrados para cada uma das fases da *Customer Journey* foram expostos, e onde lhes foi pedido para os classificarem (de 1 a 5) conforme o grau de relevância que atribuíam a cada um. O objetivo deste questionário foi a seleção dos problemas que os jovens consideram mais relevantes na sua interação com os serviços públicos, de forma a serem abordados na sessão. Finalmente, serviu, também, como forma de recrutamento dos participantes interessados na sessão.

Objetivos

Esta sessão, tem como finalidade o desenho conjunto (co-design) de possíveis soluções para os problemas mais relevantes na *Customer Journey*.

Participantes

Pretende-se que a sessão seja realizada com cerca de 5 jovens participantes recrutados através dos contactos feitos nas entrevistas, e caso seja possível com representantes da AMA (numa fase posterior). A sessão contará, também, com 1 moderador e 2 observadores que terão a total liberdade para fazerem intervenções.

Procedimentos

Na sessão será apresentada a *Customer Journey* elaborada, serão apresentados os problemas selecionados como os mais relevantes e, por fim, identificadas possíveis soluções.

A duração total prevista da sessão é de 1h 15 min e a sessão irá ser composta pelas seguintes tasks:

- Task 1 – Arranque da sessão.
- Task 2 – Exercício de Quebra-Gelo.
- Task 3 – Apresentação da *Customer Journey* e das suas fases.
- Task 4 – Apresentação dos problemas mais relevante e discussão de possíveis soluções

TASK 1 - ARRANQUE DA SESSÃO

Objetivos: Introdução e explicação dos objetivos da sessão

Tempo: 10 min

Etapas:

1. Envio por email do link para a chamada de grupo aos participantes (possivelmente usando a plataforma [Zoom](#), cuja limitação é a duração máxima de 40 minutos ou o [Google Meet](#)) e o link para o whiteboard colaborativo (usando a plataforma [Mural](#)).
2. Perguntar se todos os participantes estão a conseguir ouvir bem a chamada e se conseguem comunicar.
3. Agradecimento pela participação, relembrar projeto e apresentar a fase do estudo (recorrendo a um pequeno power point).
4. Apresentação de como é que a sessão vai decorrer e quais os objetivos (recorrendo a um pequeno power point).
5. Caso os participantes desejem, fazer uma pequena apresentação individual (nome, idade e região).
6. Pedir para, então, entrar efetivamente na plataforma Mural através do link enviado no momento.

TASK 2 – APRESENTAÇÃO DO MURAL E EXERCÍCIO DE QUEBRA-GELO

Objetivos: Explicar o funcionamento do Mural e testar o funcionamento da plataforma com os participantes

Tempo: 6 min

Etapas:

7. Explicar o funcionamento da plataforma Mural (como adicionar post-its, comentários e navegação). (3min)



- Condução de um pequeno exercício que para além de servir para perceberem a dinâmica dos exercícios, irá constituir uma atividade de quebra-gelo para o arranque da sessão. Neste exercício os participantes podem experimentar colocar um sticky note (“post-its”) contendo o seu nome e o lugar para onde querem viajar. (3 min)

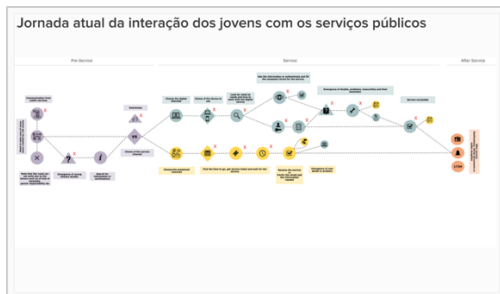


TASK 3 - APRESENTAÇÃO DA CUSTOMER JOURNEY E DA SUA PRIMEIRA FASE

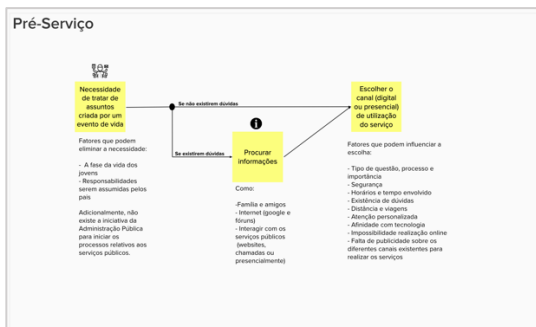
Objetivos: Validação pelos participantes da Customer Journey elaborada e de duas das suas fases **Tempo:** 6 min

Etapas:

- Explicar o que é uma Customer Journey, apresentar uma visão global da jornada atual e explicar que, entretanto, vamos focar mais precisamente em duas fases (pré-serviço e serviço digital). (2 min)



- Guiar os participantes a focar na fase do pré-serviço, perguntar se se reveem nos passos apresentados, dar tempo para refletirem e fazerem comentários, se quiserem. (4 min)



TASK 4 - APRESENTAÇÃO DOS PROBLEMAS E DISCUSSÃO DE POSSÍVEIS SOLUÇÕES

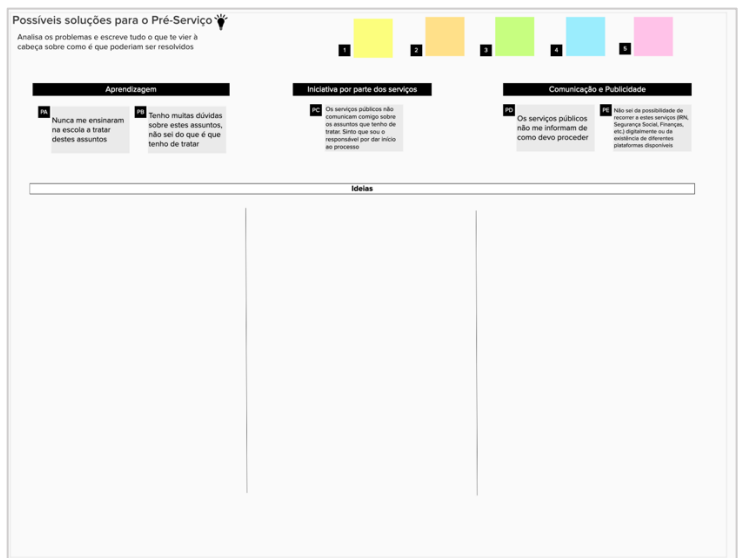
Objetivos: Apresentação dos problemas encontrados e elaboração de possíveis soluções **Tempo:** 35 min

Etapas:

11. Apresentação dos problemas mais relevantes em *post-its*.

12. Dar oportunidade aos participantes para colocarem as suas ideias de como é que os problemas poderiam ser resolvidos (potenciar a quantidade – deixar os participantes à vontade para colocarem tudo o que pensam) (4 min)

13. Posteriormente deixar tempo para que as ideias colocadas possam ser discutidas e/ou comentadas, e agrupadas conforme padrões ou relações.
(caso se verifique complicado serem os participantes a colocar os comentários nas ideias dos outros, potenciar o diálogo e o moderador com ajuda dos observadores escrevem os comentários e organizam as ideias). (10 min)



As etapas 10/11/12/13 serão repetidas para a fase serviço digital da *Customer Journey*. (+20min)

APPENDIX H: Questionnaire script

Available at: <https://forms.gle/23Q5A7A4LhUs5K948>

1. Qual é a tua idade?
2. Género
3. Região de Residência
4. Ocupação

Para esta fase foram encontrados os seguintes problemas:

(Por favor, classifica-os conforme o grau de identificação com o problema e o grau de relevância da resolução que atribuis a cada um)

Identificação: 0- Não aplicável 1- Nada 2- Pouco 3- Parcialmente 4- Muito 5- Completamente

Relevância: 0- Não aplicável 1- Nenhum 2- Pequeno 3- Médio 4- Alto 5- Urgente

Pré-serviço

1. Os serviços públicos não comunicam comigo sobre os assuntos que tenho de tratar. Sinto que sou o responsável por dar início ao processo
2. Os serviços públicos não me informam de como devo proceder
3. Tenho muitas dúvidas sobre estes assuntos, não sei do que é que tenho de tratar
4. Nunca me ensinaram na escola a tratar destes assuntos
5. Não sei da possibilidade de recorrer a estes serviços (IRN, Segurança Social, Finanças, etc.) digitalmente ou da existência de diferentes plataformas disponíveis

Serviço Digital

1. No telemóvel os sites desformatam muito (não estão bem construídos para o telemóvel)
2. Preencher os campos, por exemplo de um formulário, no telemóvel não é fácil
3. Tenho receio de fazer alguma coisa que não devo no telemóvel ao usar este dispositivo para aceder aos serviços
4. É difícil chegar ao sítio que procuro nos sites dos serviços públicos, os sites são confusos e não intuitivos
5. Os motores de busca nos sites dos serviços públicos não são os melhores
6. Não é explícito se é possível realizar o serviço online
7. Não é explicado como é que esses serviços online funcionam
8. A informação é muito densa e difícil de perceber
9. A linguagem usada não é a mais adequada
10. Problemas de autenticação com a chave móvel digital (perder a carta dos pins, autenticação bloqueou, carta pin demorou muito...)
11. Não sei preencher os formulários necessários em alguns serviços digitais
12. Não sei para onde contactar em caso de necessidade
13. Falta de resposta aos meus pedidos de contacto
14. Os serviços digitais deixam-me incerto/a sobre se ficou tudo bem tratado ou não

Serviço Presencial

1. As horas de funcionamento dos serviços coincidem com o meu horário de trabalho
2. As lojas do cidadão são confusas
3. Não sei qual a senha que tenho que escolher e não há ninguém para me ajudar
4. Os tempos de espera são muito grandes
 - 1.4.1. O que é para ti um tempo de espera grande relativamente a um serviço

5. Não existe feedback do tempo real que vou ter de esperar
6. Existem poucos funcionários para o número total de pessoas que pretendem atendimento
7. Falta de simpatia dos funcionários

Pós-serviço

1. Para esta fase não foram identificados nenhuns problemas. Recordas-te de algum que possa existir?

APPENDIX I: NVivo screenshot

17 themes and 110 codes

The screenshot displays the NVivo software interface. On the left, a hierarchical tree structure shows the following categories and items:

- DATA**
 - Files
 - Co-design feedback
 - Entrevistas Jovens
 - File Classifications
 - Externals
- CODES**
 - Nodes
- CASES**
 - Cases
 - Case Classifications
- NOTES**
 - Memos
 - Annotations
 - Memo Links
- SEARCH**
 - Queries
 - Query Results
 - Node Matrices
 - Sets
- MAPS**
 - Maps

The main workspace shows a selected node: "Preferência de digital vs presencial". Below it, a list of references is displayed with their respective coverage percentages:

- Reference 1: 1.67% coverage
se desse "fazia digital"
- Reference 1: 0.93% coverage
"oh eu preferia digita"
- Reference 1: 2.39% coverage
"eu tento sempre ir digitalmente, mas presencial tem uma coisa muito melhor em relação ao digital,
- Reference 1: 3.65% coverage
eu acho que esta questão dos meios digitais é uma boa iniciativa mas quando não é ágil suficiente para o tempo necessário de resposta torna-se um bocadinho obsoleta,
- Reference 2: 2.79% coverage
eu pessoalmente gosto muito de resolver as coisas, estas questões mais burocráticas na hora, para ficar tudo esclarecido,

The bottom status bar indicates "1 item selected" and shows the current path: CODES > Nodes > Início da jornada > Preferência de digital vs presencial.

APPENDIX J: Co-design session for pre-service phase

Possíveis soluções para o Pré-Serviço

Analisa os problemas e escreve tudo o que te vier à cabeça sobre como é que poderiam ser resolvidos



Aprendizagem

PA Nunca me ensinaram na escola a tratar destes assuntos

PB Tenho muitas dúvidas sobre estes assuntos, não sei do que é que tenho de tratar

Iniciativa por parte dos serviços

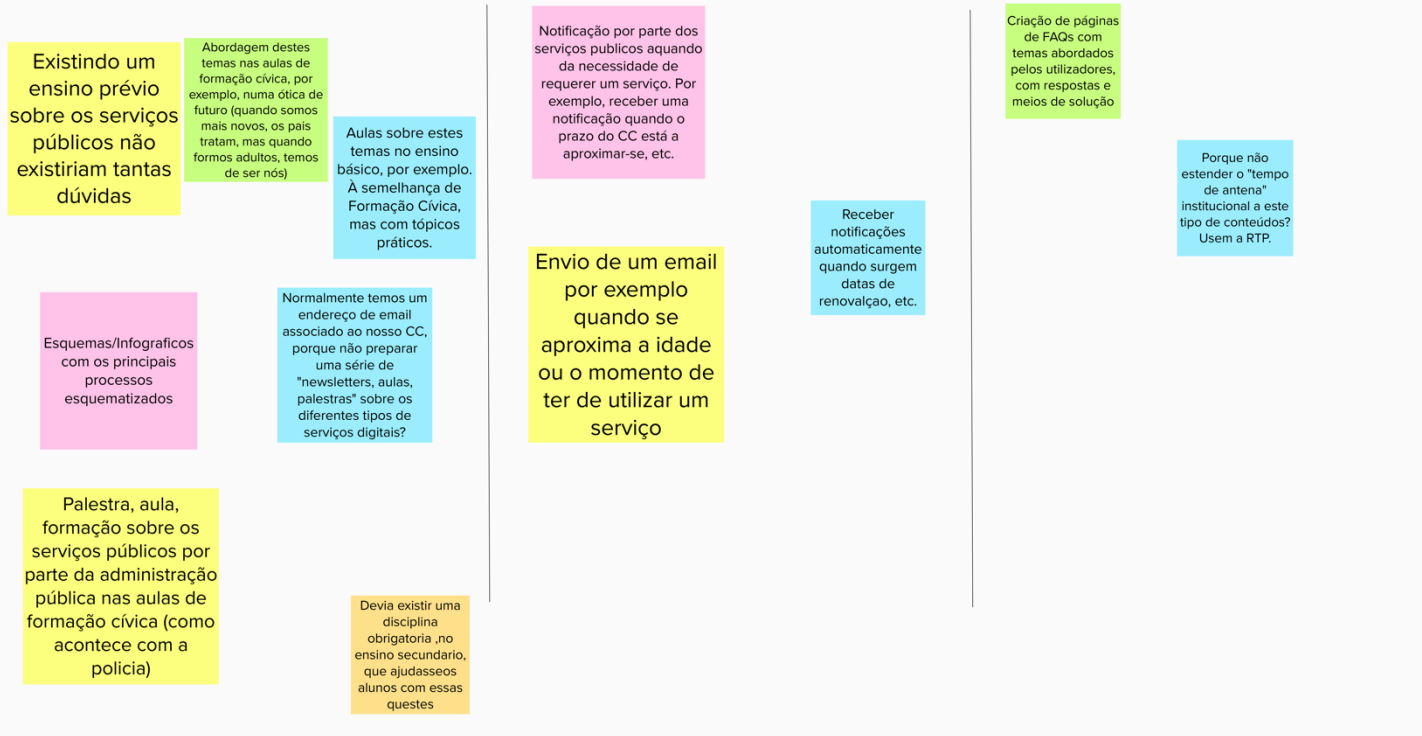
PC Os serviços públicos não comunicam comigo sobre os assuntos que tenho de tratar. Sinto que sou o responsável por começar o processo

Comunicação e Publicidade

PD Os serviços públicos não me informam de como devo proceder

PE Não sei da possibilidade de recorrer a estes serviços (RN, Segurança Social, Finanças, etc.) digitalmente ou da existência de diferentes plataformas disponíveis

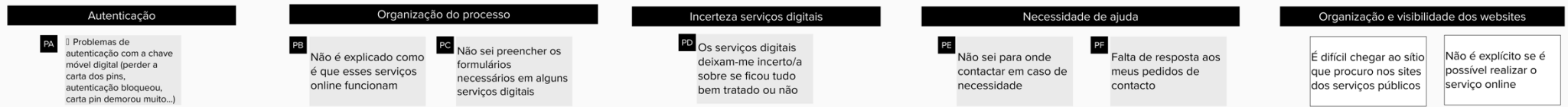
Ideias



APPENDIX K: Co-design session for digital services phases

Possíveis soluções para o Serviço - Digital

Analisa os problemas e escreve tudo o que te vier à cabeça sobre como é que poderiam ser resolvidos



Ideias

