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Essay title: Social security in Portugal: investigating how the digital experience meets the users' needs

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1. Introduction

1.1. Digital governments

Governments around the world are increasingly becoming digital governments. While there are many definitions of a digital government, this essay utilises the following definition:

> The government's use of technology, particularly web-based Internet applications to enhance the access to and delivery of government information and service to citizens, business partners, employees, other agencies, and government entities (Layne and Lee, 2001, p. 123).

Two aspects of this definition are particularly important in the context of the present essay. The first aspect concerns the channels through which information and services are delivered. While most electronic public services are delivered through institutional websites and mobile apps, Ebbers et al. (2008) argued that governments must consider other channels, digital and non-digital, to implement efficient digital strategies (e.g. telephone, face-to-face, and paper-based communication). According to the authors, 'governments may be too much guided by rational arguments like the cost efficiency of channels while citizens may choose channels depending on, e.g., task characteristics, personal characteristics or situational factors' (Ebbers et al., 2008, p. 181).

The second aspect concerns the multiple user groups mentioned by Layne and Lee's definition: citizens, business partners, employees, other agencies, and government entities. Additionally, each one of these user groups might have sub-groups. For example, citizens may play different roles when interacting with governments (e.g. customer, voter, and taxpayer). In addition, it is also important to bear in mind factors such as age, gender, education or income. Clearly, 'a "one-size-fits-all" approach will not lead to services that are of equal use to all these diverse populations' (OECD, 2005, p. 20).

In 1993, the government of the United States was the first to present a vision of a digital government where citizens would be provided with '24/7 access to public information and services regardless of their location' (Lips, 2020, p. 6). Since then, many countries have developed digital government strategies at local and national levels. The latest available United Nations e-government survey noted an overall 'persistent positive global trend towards higher levels of e-government development' (UN, 2018, p. 84). The survey included a ranking of the 193 United Nations (UN) member states and placed Denmark, Austria, and

South Korea in the top three positions. While Europe remains the highest performing region, the largest improvement since 2016 has been in the Americas, followed closely by Asia and Africa (UN, 2018, p. 148).

Furthermore, governments and intergovernmental organisations, such as the European Union (EU), the Organisation for Economic Co-operation and Development (OECD), the UN, and the World Bank, have all made digital government a core issue on their agenda (Amoretti, 2007, p. 3). The UN, for example, claims that digital governments are a powerful tool to help support the implementation of the 2030 agenda and its 17 sustainable development goals, 'by promoting accountable and transparent institutions through open data and e-participation and participatory decision-making, as well as by advancing online services to bridge the digital divides' (UN, 2016).

1.2. Towards user-centered digital governments

Putting people first, and embracing a user-centered approach, is widely recognised by many governments and intergovernmental organisations, as a fundamental driver for the development of electronic public services. As an example, the UK Government Service Manual advice is that 'when designing a government service, always start by learning about the people who will use it. If you do not understand who they are or what they need from your service, you can't build the right thing' (UK Government, 2017). Similarly, the OECD calls for a paradigm shift from a traditional government centricity to citizens' centricity (OECD, 2009, p. 25). Despite the apparent unanimity, many critics claim that the users' perspective has been overlooked, and that the decision-making process has been primarily guided by supply-side factors and technology developments (Bertot and Jaeger, 2006; Ebbers et al., 2008; Kunstelj et al., 2004).

Notwithstanding the global improvements in the provision of electronic public services, the digital divide (the gap between individuals who have access to the internet and those who do not), has been identified as one of the biggest impediments to the effective deployment of digital government (OECD, 2003; Reddick, 2005). In fact, half of the world's population do not have the possibility of benefiting from digital public services. Causes of the digital divide are multiple, and include: age, education, gender, race, IT literacy, geographical location, and income. In these cases, governments must aim for inclusiveness and, 'ought to deliver their public services through traditional channels, including, front office operations or via toll-free telephone numbers' (Camilleri, 2019).

While the concept of digital government may be applied to multiple government services, the present study will focus on the welfare state, in particular, on the Portuguese social security system. Well-functioning social security systems are an essential tool for social justice and equality. However, concerns have been raised about the increasing automation of the welfare state through artificial intelligence and other technologies. A UN report, released in October 2019, warns that many countries around the world are in 'grave risk of stumbling zombie-like into a digital welfare dystopia' (UN, 2019, p. 21), and recommends that 'instead of obsessing about fraud, cost savings, sanctions, and market-driven definitions of efficiency, the starting point should be on how welfare budgets could be transformed through technology to ensure a higher standard of living for the vulnerable and disadvantaged' (UN, 2019, p. 22).

2. Epistemological and ontological considerations

Every piece of social research is underpinned by philosophical considerations that precede the methodology and represent the basis of the work of social scientists. Epistemologically, this study will have an interpretivist approach to assume the subjective meaning of social action (Bryman, 2012, p. 30). Ontologically, it will have a constructionist approach to advocate that social action is continually being shaped by social actors (Bryman, 2012, p. 32). At its core, the study will use a deductive approach, given that it has a hypothesis to test through research. However, it will also use a deductive approach to develop a set of ideas from the research findings.

3. Research question and hypothesis

This study's research question is: **To what extent is the Portuguese social security system providing a digital experience that effectively answers the users' needs?** To investigate this research question, the study's hypothesis is that the Portuguese social security system is providing a digital experience that does not meet the full extent of the users' needs.

4. Concepts that underpin the research question

The two concepts that underpin the research question are *users' needs* and *users' experience*. While these concepts may mean different things in the context of different branches of knowledge, the present essay utilises them in the context of Human-Computer Interaction (HCI). HCI is a field of study that focuses on the interaction between humans (the users) and all forms of information technology, and sits at the intersection of computer science, behavioural science, and design. Before briefly exploring the two concepts that underpin the

research question, it is worth mentioning that in the context of HCI, a *user* is a person who utilises a particular technology, but also a person that has done it in the past, or will do it in the future.

According to the UK government, user needs are 'the needs that a user has of a service, and which that service must satisfy for the user to get the right outcome for them' (UK Government, 2017). In the present study, the term *users' needs* will be used interchangeably with the term *themes* depending on the context.

According to pioneers in the field, user experience 'encompasses all aspects of the end-user's interaction with the company, its services, and its products' (Norman and Nielsen, 2016). The present study will use the same holistic approach to the user experience. It will focus primarily on the digital services currently provided by the Portuguese social security system—one website and one mobile app—but will also consider other channels of digital communication (e.g. social networks, email, phone, etc.) and channels of non-digital communication (e.g. telephone, face-to-face, and paper-based communication).

5. Methodology

Despite the focus on the qualitative component, the proposed research will employ both qualitative and quantitative methods. Using Creswell and Clark's (2010, pp. 68–72) classification of the major mixed methods designs, the research will use a *multiphase design*, which 'combines both sequential and concurrent strands over a period of time' (Creswell and Clark, 2010, p. 72). In the first part of the study, a survey will help to identify the high-level themes (or users' needs) (see table 1, p. 8). In the second part of the study, interviews will help to understand and clarify some of the survey's findings and clarify the users' needs (see table 2, p. 12). Finally, in the third part of the study, usability testing will discover how users' needs are being met by existing designs (see table 3, p.13). Pilot studies will be carried out for all the research methods—both with research colleagues and participants—to help ensure that survey questions operate well, and that the research instruments as a whole function well (Bryman, 2012, p. 263).

5.1. First part of the study: the survey

5.1.1. Why a survey

Surveys have a number of advantages in comparison with other data collection methods.

Particularly relevant to this study are the high-level insights into the user experience that can be obtained, and the themes (or users' needs) that can be identified. As Lazar et al. (2017, p. 106) noted, 'surveys can be very useful for getting an overview, or a snapshot, of a user population'. Moreover, a large number of people spread through a relatively large geographical area, such as Portugal, can be reached. Other advantages of utilising a survey include: (1) the possibility to 'generalise findings derived from a sample to the population' (Bryman, 2012, p. 195), (2) the relatively low cost to administer, (3) the absence of interviewer effects, (4) the absence of interviewer variability, and (5) the convenience for respondents (Bryman, 2012, p. 234).

5.1.2. Sampling and recruitment

The choice of the sampling and recruitment methods depends on whether or not the collaboration of the Portuguese social security office can be obtained. If collaboration is obtained, probability sampling might be possible, as long as the data available allow participants to have the same chance of being selected. This is the preferred sampling method because it is the one that best takes into account the representativeness of the population, and therefore, it will be possible to 'generalise findings derived from a sample to the population' (Bryman, 2012, p. 195). Regarding the type of probability sampling, stratified random sampling is the preferred option, as it involves partitioning the sample into smaller groups, known as strata, and allows the generalisation of findings from the strata to subpopulations. However, stratified random sampling will only be feasible if the data allows for the identification of mutually exclusive user groups (e.g. citizens, employers, and civil servants). Each user group would have the same percentage of representatives in the sample and in the population, and the data analysis would be done taking this into consideration. Recruitment will be achieved digitally, either by (1) inviting users to participate in a web survey while they are using the website and the mobile app or, (2) by sending participants an email invitation to participate in a web survey. The recruitment method would need to be decided in consultation with the Portuguese social security office, but the first option is preferred given that recall bias will be reduced if participants complete the survey while they are using the website and the mobile app.

If collaboration with the Portuguese social security office is not obtained, convenience sampling (a type of non-probability sampling) will be used: recruitment will be undertaken as people leave the social security buildings, by inviting them to participate in the web survey. Despite the justified concern, expressed by some authors, regarding the potential for biased results in convenience sampling (Baker et al., 2013, p. 5), others argue for the relevance of

this type of sampling in some scenarios (Bryman, 2012; Lazar et al., 2017). In fact, convenience sampling will not generate generalisable findings, but will still help to identify the most common issues for the users.

The sample size has not yet been defined. As Bryman (2012, p. 198) noted, 'the bigger the sample, the more representative it is likely to be (provided the sample is randomly selected)'. However, the size of the sample in the present study, will also depend on: (1) the type of sampling that will be used (convenience or stratified random sampling), (2) the time required for data analysis, and (3) the human resources available.

5.1.3. Execution

Regardless of the sampling and recruitment methods utilised, responses will be collected using Survey Monkey, a web survey tool. Demographic data will be collected in order to estimate how representative the sample is of the population. Closed-ended questions will be prioritised, since they are usually easier to answer. However, some closed-ended questions will be followed by open-ended questions about the same subject. While closed-ended Likert scale questions (e.g. 'I was able to complete my tasks efficiently') will generate quantitative data and help to find the most common issue areas, open-ended questions (e.g. 'What would make the completion of your tasks more efficient?') will generate qualitative data and allow understanding some of the reasons behind participants' answers (see table 1, p. 8). The Likert scale format will have a five-point scale going from 'strongly agree' to 'strongly disagree', and the response bias will be reduced by varying the phrasing of the statements so that some imply a positive and others imply a negative view of the user experience (Bryman, 2012, p. 166). The survey will be relatively short; its questions simple and direct, with the aim to 'reduce the risk of respondent fatigue' (Bryman, 2012, p. 233), and to avoid a low response rate. The survey will not capture the participants' contact details, except if they demonstrate an interest in participating in the next phase of the research.

Regarding its structure, the survey will use Peter Morville's 'facets of the user experience' as the framework of themes to be explored. This framework appears to provide a comprehensive list of factors to evaluate user experiences: useful, usable, desirable, findable, accessible, credible, and valuable. It is important to point out that this study will focus on all of these factors except one, accessibility. Computer accessibility is the degree to which a product or service is usable by people with disabilities, and it requires an extensive knowledge about the Web Content Accessibility Guidelines (WCAG) and assistive technologies.

Table 1 – First part of the study: the survey

Method: survey	Survey question (example)	Theme identified (example)
Data QUANT + qual **Main purpose** Identify themes (or users' needs)	**Closed-ended Likert question** 'I was able to complete my tasks efficiently.' **Open-ended question** 'What would make the completion of your tasks more efficient?'	**Category** – Issues claiming unemployment benefits

5.1.4. Data analysis

Quantitative data generated by the survey's closed-ended Likert scale questions will be analysed in order to understand what are the most common issue areas. Subsequently, NVivo will be used to help carry out a thematic analysis of the qualitative data generated by the open-ended questions. The first step will be to become familiar with the qualitative data by reading the responses. The second step will be to label segments of the text with preliminary codes, and then to group all the data that has the same code. The third and last step will be to review, edit, and create new descriptive codes, if appropriate, until the underlying set of themes (or users' needs) are uncovered (see an example in table 1, p. 8). In addition, sub-categories might need to be created underneath the general ones to provide even richer detail.

5.2. Second part of the study: the semi-structured interviews

5.2.1. Why semi-structured interviews

The purpose of conducting interviews after the survey is to find complementarity. According to Greene, Caracelli, and Graham, this process involves 'seeking elaboration, enhancement, illustration, and clarification of the results from one method with results from the other method' (Greene et al., 1989, p. 259). In fact, the interviews will help to gain an understanding of, and clarify the initial findings. In addition, if new themes start emerging, it will be possible to adjust the interview guide, ask more detailed follow-up questions, and therefore generate new findings.

Another advantage of an interview is one of data granularity. As Lazar et al. (2017, p. 106) mentioned, 'a survey is very good at getting limited shallow data from a large number of

people, but is not very good at getting deep, detailed data'. In contrast, interviews can discover the core problems, offering a more complete picture of the users' needs. This does not mean, however, that the interview will have specific questions only. In fact, interviews will start with high-level questions and move towards more specific ones over the course of the session. As Lazar et al. (2017) pointed out, the process of gathering requirements requires asking 'broader questions about current—possibly non-computer—practices, future goals, frustrations and concerns' (Lazar et al., 2017, p. 193).

5.2.2. Sampling and recruitment

At the end of the web surveys (first part of the study), participants will be given the opportunity to demonstrate an interest in participating in further research by entering their contact details. Purposive sampling, a non-probability form of sampling, will then be used to select which participants will be invited to the interviews. Purposive sampling will not generate generalisable findings, but will help gain an understanding of and clarify some of the initial survey findings. Sampling criteria will prioritise: (1) participants whose survey responses might need clarification, (2) participants who are representative of the population, (3) participants who might be particularly good sources of information (Lazar, 2017, p. 197), and (4) participants who might be able to answer particular research questions. Recruitment will be done by sending participants an email invitation to participate in the interview, and offer a monetary incentive to increase the participation rate. For the positive answers, another email will be sent with the interview details (e.g. location, day, and time). The sample size has not yet been defined, but it is expected to be relatively small. Defining the sample size will take into account: (1) how much clarification needs to be done after the survey results are analysed, (2) the time required for the interviews, transcriptions, and analysis, and (3) the human resources available.

5.2.3. Execution

The aspects that will be taken into account in defining the interview guide and questions include: (1) the participants' previous responses to the survey, particularly those responses that might need clarification; (2) the existing set of open-ended survey questions; (3) Bryman's rules for designing questions (e.g. avoiding questions that are too complex, double-barrelled, leading, or use unfamiliar terms, etc.); and (4) Kvale's typology of questions in qualitative interviews that include introducing questions, follow-up questions, probing questions, specifying questions, direct questions, indirect questions, structuring questions, silence, and interpreting questions (Kvale, 1996, p. 32). During the interviews,

new themes might arise as a result of something the interviewee says, so the order and wording of the existing questions might change, and new follow up questions might be necessary.

The interview style will be: (1) friendly and supportive, so that the interviewees are more inclined to give honest and useful feedback (Lazar, 2017, p. 212); (2) receptive, enabling interviewees to have 'a large measure of control in the way in which they answer the relatively few and relatively open questions they are asked' (Wengraf, 2001, p. 154); (3) non-judgemental, focusing on 'not to indicate agreement or disagreement with the interviewee' (Bryman, 2012, pp. 473–474); and (4) critical, challenging 'what is said—for example, dealing with inconsistencies in interviewees' replies' (Bryman cited in Kvale, 2012, p. 475).

Before the interview, a few practical aspects will be considered including: (1) organise travel logistics to meet participants in a convenient location for them, (2) finding a quiet interview location, and (3) obtaining a good quality audio recording machine and microphone. During the interview: (1) briefly explain the research goals, interview structure, and expected duration of the interview, (2) explain the data handling and seek the interviewee's informed consent, (3) collect demographic data in order to contextualise the interviewee's answers, (4) ask whether the interviewee has any questions before and after the session, and (5) keep the audio recording going until the participants leave the interview location.

Table 2 – Second part of the study: semi-structured interviews

Method: semi-structured interviews	Interview question (example)	Theme clarified (example)
Data QUAL **Main purpose** Clarify themes (or users' needs)	'During the survey you have mentioned issues with claiming unemployment benefits online. Could you please explain more?'	**Category** – Issues with eligibility criteria for unemployment benefits **Sub-categories** – Difficulties in finding information about eligibility criteria – Difficulties understanding eligibility criteria – Uncertainty about outcome

5.2.4. Data analysis

The interviews' data analysis will serve to clarify certain aspects of the themes (or users' needs) uncovered by the survey. In contrast to the surveys, the interviews will not require NVivo to analyse the data. The first step will be to transcribe the audio recording, review the researcher(s) notes, and check the content against the themes previously uncovered during the survey. The second step will be to review, edit, and add new themes if appropriate. Additionally, sub-categories might need to be created underneath the general ones to provide even richer detail (see example in table 2).

5.3. Third part of the study: usability testing

5.3.1. Why usability testing

While the focus of the first and second parts of the study (the survey and the interviews) will be on what the participants think and say, the main focus of usability testing will be on what the participants do. Usability testing 'involves representative users attempting representative tasks in representative environments, on early prototypes or working versions of computer interfaces' (Lazar cited in Lewis, 2017, p. 263). As McCloskey (2014) noted, 'the most effective way of understanding what works and what doesn't in an interface is to watch people use it'. Usability testing focuses on how users interact with an interface in real-time. The goal is 'to improve the quality of an interface by finding flaws-areas of the interface that need improvement' (Lazar et al., 2017, p. 264). These findings are expected to be more granular than the ones previously uncovered by the survey and the interviews.

5.3.2. Sampling and recruitment

Similar to the interviews, usability testing participants will also be selected from the list of people who, at the end of the surveys, have demonstrated an interest in participating in further research. Additionally, participants might be invited to participate in usability testing at the end of the interviews. The sampling method will be the same as the interviews (purposive sampling). However, sampling criteria will prioritise: (1) participants whose profile is relevant to the product feature that will be evaluated, (2) participants who are representative of the population, (3) participants who might be particularly good sources of information (Lazar, 2017, p. 197), and (4) participants who might be able to answer particular research questions. Similar to the interviews, usability testing recruitment will also be done by sending participants an email invitation to participate, and offering a monetary incentive to increase the participation rate. For the positive answers, another email will be sent with the interview details (e.g. location, day, and time).

5.3.3. Execution

In order to observe participants, tasks will be given to them to complete using the website and/or the mobile app. Tasks will be customised to each participant, depending on their previous responses to the survey and/or interview. However, it might be necessary to ask participants to perform tasks they would not normally perform. In such cases, scenarios will be given to provide a relevant context and to help the participants act as if they would normally perform the tasks (see example in table 3, p. 13). Participants will be given all the information that they will need to complete the tasks, without giving too much away.

This phase of the study will draw on similar research conducted by Nicolson et al. (2011). Three auxiliary methods will be carried out simultaneously with the usability testing: (1) observation, (2) verbal protocol integration, and (3) tracking participants' online actions. Observation is a good method to examine how people use technologies in their intended settings. While researcher(s) observe user behaviour, participants will be asked to think aloud while performing their activities. This method has been regularly used in the usability field to capture users' thoughts that would otherwise have been impossible to realise. The third method to be used simultaneously will be tracking participants' online actions, by recording the online actions using computer software. This will enable researcher(s) to focus on the usability testing, observation, and the think-aloud protocol, and to perform further analysis later.

Usability testing will take into consideration the same practical aspects previously mentioned for the interviews (see chapter 5.2.3).

Table 3 – Third part of the study: usability testing +3

Method: usability testing (+ 3)	Usability testing question (example)	Sub-category observed and clarified (example)
Data QUAL **Main purpose** Observe how user's needs are met by existing design	**Scenario** 'Imagine you are unemployed and want to claim unemployment benefits.' **Task** 'Please use this computer to claim unemployment	**Sub-category** – Difficulties in understanding eligibility criteria **Problems found** – Language is too technical – Too much information on screen – No automatic eligibility checks

	benefits.'	– Not optimised for mobile

5.3.4. Data analysis

Usability testing data analysis will aid in understanding how user needs are being met by the existing design. The process will be identical to the interview data analysis. Screen recordings and researcher(s) notes will be reviewed, audio recordings will be transcribed, and the content checked against the themes uncovered previously. Subsequently, themes (categories and sub-categories) will be reviewed, edited, and new themes will be added if appropriate (see example in table 3).

6. Possible difficulties

6.1. Survey

Sampling errors might occur for the following reasons: (1) the risk of obtaining an unrepresentative sample, and (2) the risk of a sampling bias. The first possible error will be minimised by giving preference to probability sampling (stratified random sampling), over non-probability sampling (convenience sampling). The second possible error derives from the fact that some users might not be receptive to web surveys (e.g. users who are less tech-savvy), and therefore, 'have little or no chance of being selected for inclusion in the sample' (Bryman, 2012, p. 188). In this case, additional modes of survey administration will be considered to reduce sampling bias.

Additionally, this study will strive to minimise two types of non-sampling errors identified by Bryman: data-collection errors (e.g. poor question wording), and data-processing errors (e.g. coding of answers) (Bryman, 2012, p. 206).

6.2. Semi-structured interviews

During the interviews, participants will not be able to use the Portuguese social security website nor the mobile app, and consequently, may be subjected to recall bias. In order to minimise recall bias, the interviewer(s) will follow Thomsen and Brinkmann's recommendations on how to improve the reporting and description of specific memories. These recommendations include allowing time to recall, providing concrete cues, asking for recent specific memories, and asking for a detailed narrative of the specific memory (Thomsen and Brinkmann, 2009, p. 303). Interviewer(s) will also have the option to show the

website and mobile app as probes, if they consider that will help the interviewees with their task recollection.

Another anticipated problem is response bias (acquiescence and social desirability biases). Although commonly associated with structured interviews (Bryman, 2012, p. 227), this phenomenon can also be observed in semi-structured interviews, surveys, and usability testing. Therefore, particular attention will be given to minimise response bias in all the research methods utilised. Acquiescence bias will be minimised by avoiding leading questions, and by using 'wordings that imply opposite stances' (Bryman, 2012, p. 227). Social desirability bias will be minimised by 'not becoming overly friendly with respondents, and by not being judgemental about their replies' (Bryman, 2012, p. 228).

6.3. Usability testing

The behaviour of the participants might be modified because they know they are being observed (the Hawthorne effect), and as a result of the physical and environmental factors. In order to minimise these biases, researcher(s) should be open, receptive, and non-judgemental. Moreover, it is important to make participants feel as comfortable as possible by mentioning, for example, that what is being tested is the website and the mobile app, not themselves, and that there is no right or wrong answer.

Each usability testing session will be facilitated by a researcher, and if possible, there will be an additional researcher acting as a note-taker. The goal is to have someone else's perspective, and therefore minimise the researcher's bias.

7. Discussion of ethical issues

The present study will follow the ethical guidelines for social research with human subjects, and in particular the 'Research ethics general guidance' provided by the Birkbeck University of London. Particularly relevant for this study is (1) the respect for free and informed consent, (2) the respect for data confidentiality, and (3) the respect for the anonymity of the participants. Informed consent (for the survey, interviews, and usability testing) will be obtained from all participants: information will be provided on the project, research goals, expected duration, how data will be handled and shared, the right to decline answering questions, and the right to withdraw from the research. The respect for data confidentiality will be guaranteed by a data management plan that will be created prior to data collection. The anonymity of the participants will be secured by ensuring that personal information, such

as names and contact details will only be seen by the researchers involved in the study, and will not be held as part of the project. Moreover, the researchers will sign a non-disclosure agreement, and data files (including transcripts) will use identifier codes instead of the participants' names.

8. Report findings

The research report will be written with a focus on the audiences, such as academia, social scientists, and government officials. In addition, other methods to disseminate the findings might need to be considered depending on whether or not they need to be presented to other types of audiences. For example, senior managers might want an overview of the findings, and therefore, a simple document highlighting the main findings and proposed design changes will suffice; whereas developers and designers might need to delve into the details, and therefore, a matrix with the entire hierarchical structure of findings, recommendations (categories, sub-categories, etc.), and participants' quotations would be required.

9. Literature review

To the best of the present author's knowledge, no study has yet been carried out on the extent to which the users' needs are effectively being answered by the Portuguese social security digital services.

In 2018, the UN e-government survey measured the quality of the online public services provided by 193 countries, and placed Portugal in the 19th position. According to the report, the Portuguese modernisation of public services is a good example of how governments can implement citizen-centric digital services (UN, 2018, p. 18). As part of this strategy, the social security system offers digital products that aim to focus on the user's needs. Examples include: (1) the mobile app launched in December 2018, which according to the European Commission (EC), "provides an easier and simpler way for citizens and companies to access social security services wherever they are and whenever they want" (EC, 2019, p. 6); (2) the social security website, in which "citizens can access their Social Security data and perform a wide range of services" (EC, 2019, p. 24); (3) *Citizen Spots*, a "multi-service physical counter where a specialised mediator assists citizens in accessing a portfolio of digital public services and further teaches them how to perform it autonomously thereafter (EC, 2019, p. 28); (4) *SIGA*, a website which "allows users the online scheduling of public services" (EC, 2019, p. 55).

While the Portuguese government has a reputation of embracing a user-centered approach to the development of its digital services, the scarce research published about the subject indicates gaps, critical errors and non-compliances (Carvalho, 2015; Carvalho et al., 2016). Unlike the present research proposal, which evaluates digital services by researching if the users' needs are being answered efficiently, Carvalho's (2015) study evaluates digital services by comparing the existing solution against accepted usability, accessibility and quality principles. The author has identified gaps, critical errors and non-compliance across the 130 websites analysed. Amongst them, the social security website obtained high scores for content (72%), and lower scores for usability (56%, including particularly low results for sub-indicators responsive design, 14%, and font size, 29%), efficiency (45%) and accessibility (14%).

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