European Insurance and Pension Authority (EIOPA)

Request for Service EIOPA/2020/01 under Framework Contract CHAFEA/2019/CP/01
Provision of Behavioural Studies – Third Wave to provide services for Behavioural Research

Consumer testing of digital disclosures in pension tracking systems across the EU

Final Report

Submitted by Open Evidence, London School of Economics, and BrainSigns I

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1 Introduction

This final report brings together the work for EIOPA carried out over a period of 4 months, from June to September 2021 as part of the study called "Consumer testing of digital disclosures in pension tracking systems across the EU". Following a behavioural approach, this study provides evidence to support EIOPA in forming an opinion on the design of a digital interface of the Pension Tracking System, which will be delivered as technical advice to the European Commission. The results outline which information should be presented in PTS, because deemed to be essential or useful by consumers, and how the interface of such system should be designed to be appealing and user-friendly.

As clearly stated in the title, the purpose of this study was to test the user experience of a newly designed digital interface of a PTS, with focus on the landing page that presents summary/key information and subsequent layers that lead to additional information. For instance, one of the key issues to investigate in the present study is whether the consumers pay more attention to a certain type of graphic style or certain content, in order to identify essential information and appealing design.

The study is operationalized into 3 specific objectives:

1. To design a digital interface of a Pension Tracking System, with different ways of presenting the landing page with summary/key information and the approach to layering of additional information in consultation with the designated EIOPA expert, in a way that is compatible with different devices: computer/mobile/tablet.
2. To conduct qualitative consumer testing in a representative number and spread of Member States of the European Union, the results of which will help EIOPA to form an opinion on the design of a digital interface of the Pension Tracking System.

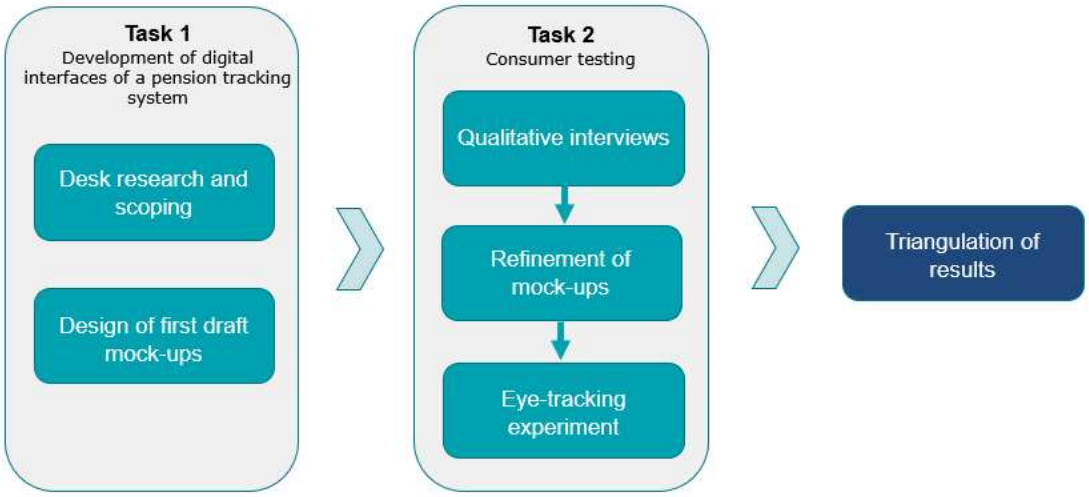
To analyse the users' journey experience in navigating the pension tracking tool to understand what the reactions to the information are presented, if consumers find certain aspects of information difficult to understand and how to overcome those difficulties.The study conducted used a mixed method approach to address the three objectives above, which entailed an initial desk research and scoping that inform the design of mock-ups, and finally, two consumer testing experiments: qualitative interviews and the eye-tracking experiment. Each of the methods used (desk research, design of mock-ups, qualitative interviews and eye-tracking experiment) addressed the objectives of the study in different ways. In this final report we summarise the conclusions of each phase, then we triangulate the different results to draw some general conclusions.

We present below our approach, subdivided into two main tasks:

1. **Design work (Task 1)**. This task will involve the development of different mock-ups of a digital interface of a pension tracking tool, following the requirements of the EIOPA experts. In the preparatory phase of this Task, we will conduct a scoping desk research to ensure that the design work follow the most effective behavioural insights.

2. **Consumer testing (Task 2)**. This task will consist in the consumer testing of the developed mock-ups of digital interfaces. In order to effectively carry out the task the consortium will engage first in a "think aloud" activity, where participants will navigate the interfaces and express to a researcher their thoughts and opinions; second a eye-tracking experiment, in which participants will carry out the same activities as in the think aloud, but this time their eye gaze and facial expressions will be recorded.

Figure 1 Our approach



In the remaining part of this introductory chapter, we briefly summarise the main activities carried out as part of this study and the structure of the report.

The first step consisted in desk-based research to explore the available evidence on behavioural biases that influence users understanding of digital information, to gather additional knowledge on the topic. This evidence helped us in shaping the desired design of the interface of PTS. A second step regard the design of mock-ups, the process followed during this task is outlined in Chapter 2. To tackle objective 2, we conducted a series of structured online sessions ("think aloud" interview), where people navigated the different layers of the tracking tool. The qualitative study involved 8 participants in three countries, namely Italy, Spain and Romania. The details and results of this task can be found in Chapter 3. The evidence from the qualitative interviews was complemented first by neuroscientific investigation of the navigation of three different mock-ups of PTS, that we refer to in this document as "Eye-Tracking Experiment". This activity took place online with participants from the same three countries as the interviews. We reported the details and results of the experiment and of a follow-up survey in Chapter 4.

Those activities yielded relevant results and contributed to the final triangulation of findings that can be found in Chapter 5. By combining the various sources (qualitative interviews, Eye-Tracking experiment, follow-up survey), these activities provided an interpretative answer to Objective (2) and (3).

In the following chapters we go further in detail on the objectives, methodology and main results of each of the activities. Then, in Chapter 5 we draw conclusions from all the evidence gathered. Those findings can inform EIOPA in the designing of digital interfaces of the Pension Tracking System. Finally, we added in the Annexes at the end of the report the most relevant documents from each activity.

2. Development of mock-ups

The development of different mock-ups of a digital interface of a Pension Tracking System was the first step of the study, aimed at tackling Objective (1). In particular, in consultation with EIOPA expert, we designed three different ways of presenting the landing page with summary/key information and three different approaches to layering of additional information. Furthermore, each of the option was graphically designed in two different styles: Bar Chart (Figure 2**Error! Reference source not found.**)and Doughnut (**Error! Reference source not found.**). The content was translated in accordance with the languages of the countries selected for the study (Italy, Spain and Romania).

Figure 2 Mock-up Style 1 - Bar Chart

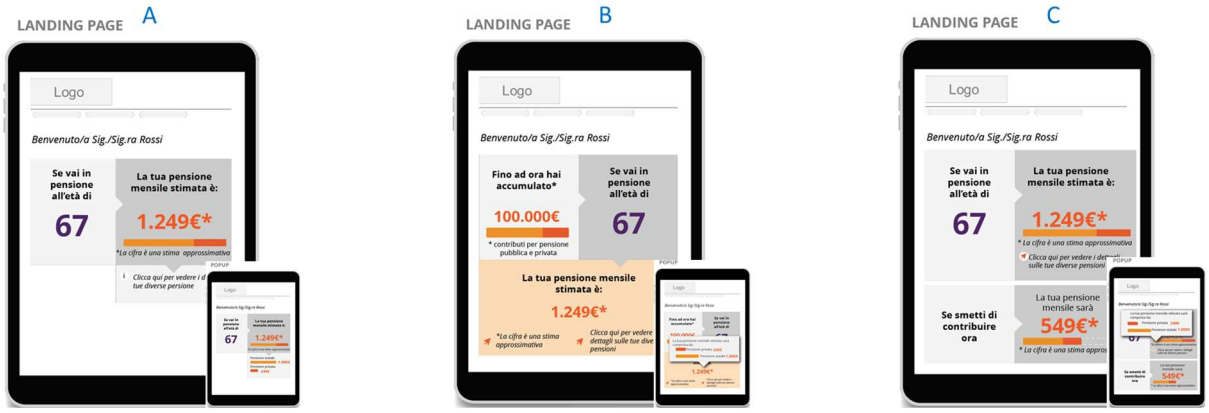
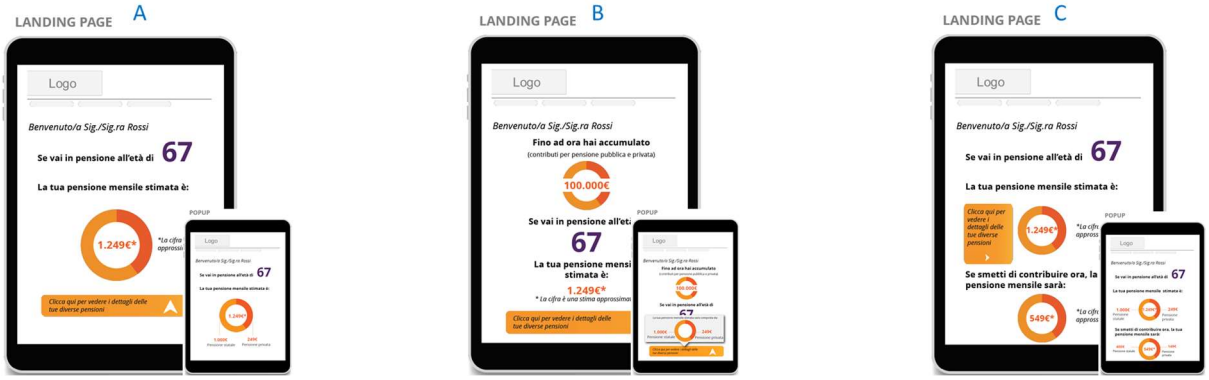


Figure 3 Mock-up Style 2 - Doughnut



In order to produce those final output, we first made sure that the designs allow users to easily find an answer to a set of fundamental questions:

1) By when can I retire?
2) What will be my retirement income?
3) What's my total savings (How much have I saved up till now?)?
4) Which pension providers do I have (Where are my savings?)?

Starting from these common-sense questions, we ensured that the information presented in the digital interfaces allow users to easily understand whether the amount saved (combined with their existing personal wealth) is enough to maintain their expected tenor of life, and, in case it is not, what they can do to improve their retirement income prospect.

We followed the multi-layered structure. This consisted of a first layer, the landing page, and a second layer, the pop-up info. The landing page contained an overview of the expected retirement income and the default retirement date, so that users could quickly and easily find an answer to questions 1 and 2. In Option B we added the total accrued saving as an additional information, while in Option C, we inserted the amount a person would get if he/she stops saving immediately ("if I stop saving now"). Adding additional information had allowed participants in the qualitative interviews and in the Eye-Tracking experiment to make a comparison on the content provided and to express their perceptions and opinions.

The second layer gave an overview of accrued entitlements and the individual sources of income broken down by entity (state pension and private pension). On the top of it, pop-ups were appearing in different positions on the interface to verify whether the user experience might change due to it. This layer allowed users to find an exhaustive answer to questions 3 and 4.

The design of the interfaces followed a structured process to ensure that the user's cognitive and behavioural biases in digital environment are taken into consideration. This approached was supported by previous studies conducted by the consortium, as well as in an ongoing project for EIOPA.

Thanks to this informed approach we were able to propose a set of designs that incorporate features based on advanced communication standards and consider cognitive and behavioural biases. In particular:

- simple, clear format;
- plain language;
- summaries;
- appropriate use of colour to draw attention to the core messages of the interface;
- appropriate amount of text/paragraphs to avoid excessive cognitive load;
- symbols and icons for the different sections;
- use of columns;
- use of references/external links;
- underlined titles and section breaks; and,
- comprehensive layering structure.

Overall, the mix of these features had improved consumers' understanding of the information presented on the digital interface.

The mock-ups of the Pension Tracking System have been tested in the subsequent tasks.

3. Qualitative interviews

3.1 Objectives

The qualitative interviews assess how consumers perceive the content and the different graphic solutions about Pension Tracking Systems. The findings gathered through the interviews informed the refinement of the mock-ups and reduced the number of options to be tested during the eye-tracking experiment. The results provided also insightful information for the final assessment of the mock-ups.

The qualitative approach main strength is that it allows for more in-depth examination of interviewees preferences, thoughts, and perceptions on the different designs presented. Compared to quantitative methodologies, that can be more statistically strong and therefore allow for the quantification and generalization of results, the qualitative nature of the interviews is more suited to capture some immediate subjective experiences. Data from interviews would not be sufficient on their own to draw solid conclusions and suggest recommendations, however, if mixed with experimental, quantitative findings, it can enrich the final triangulation of results, guiding towards more robust findings, and more effective recommendations.

The qualitative interviews explored 3 main issues:

1. **Content**: whether information presented are useful to make future decisions, the clarity of information and participants' level of understanding of the main concepts
2. **Graphic**: the perception of the solutions presented, the attractiveness of landing page and pop-ups, colours, formats, and saliency of information.
3. **Stated preferences**: participants stated their preference for the 3 options and the 2 styles presented.

3.2 Methodology

To fulfil the research objectives, we conducted 24 prompted "think aloud" sessions in three chosen countries that were also included in the eye-tracking experiment. These three countries were **Italy**, **Spain and Romania**.

This country selection was decided on the criterion that the study should be conducted in countries that do not have a Pension Tracking System in use. This way the participants recruited were relatively unfamiliar with the concept of a PTS, allowing us to gather more robust evidence, as we measured the level of understanding of users that are not accustomed to checking their pension status through a PTS.

We recruited 8 participants in each of the selected countries. The age of the participants ranged from 45 to 60 years old and all participants had an integrative pension activated. The participants have been balanced by gender, and have been recruited only if they have at least two different pension sources (state, occupational or personal). The interviews were conducted remotely and lasted approximately 30-45 minutes each and followed a guide, which was used to help structure the "conversation". Broad themes were set out, but participants were free to say what they think and to surprise the researcher with ideas that had not be considered before. The guide is consultable in the **Annex I** at the end of this document.

During the "think aloud" interviews, three different layout version of each of them (A-B-C options) and two different styles (bar-chart and doughnut) have been considered and presented to participants. The stimuli were randomized and provided in the specific language in each country in which the interviews were conducted.

3.3 Results

In this section of the report, we summarize the findings the emerged from the discussions in the "think aloud" interviews, further details can be found in

6.2 Annex II – Qualitative interview results. We divided the results into three main parts:

1. Perception and preferences of content
2. Perception and preferences of graphic
3. General opinions

The results are not divided by country, instead, eventual differences detected among the three researched countries are pointed out when being appropriate.

Perception and preferences of content

During the first part of the interviews, where participants were required to express their perceptions, opinion and preference regarding the content of three different options of pension tracking system (both landing page and pop-up for each option), it emerged a strong preference towards option B (42%) and options C (50%). Those two options provided a more complete set of information, if compared to option A, where information is considered to be the least useful since it displayed only the retirement age and the projected income. Options C included also present and future information, highlighting how much the monthly pension income would be if a person stops saving immediately and how much it would be if he/she retires later in life. From the interviews emerged that knowing the expected monthly income at retirement is the most essential information (88%), while having knowledge about the current amount if the person stops saving immediately is not considered important by those who are still "young" and have many years left before retirement. The estimation becomes more interesting the closer the person gets to retirement age. Similarly, option B displays the expected monthly income when retiring at a given age, but it also includes how much the user saved so far ("total accrued saving"). Some participants, thinking aloud, clearly stated a feeling of confidence and security by knowing what they have done until now. The additional information presented in the pop-up, on how the total amount of monthly pension income is split between two different sources (state and private pension), completes the picture, but is deemed not that essential.

Overall, the three designs, that only differ in the type of information provided in the first layer (landing page), are mostly understandable. However, options A is considered as the most immediate and easy to read, due to concise and little information showed.

A concern regarding personal data emerged from the "think aloud". In particular, option B shows several private data immediately in the landing page. Some participants express a preference for having those details displayed in the pop-up, with some information considered as additional, such as the breakdown of pension by source and the amount of the pension if a person stops saving immediately. On the other hand, projected monthly pension income at retirement, retirement date, and total saving are the information that should be displayed in the landing page.

Perception and preferences of graphic

The second step of the interview, after having expressed opinions and preferences in term of understanding of the main concepts that should be presented in a PTS, consisted in showing two different graphical versions.

The two different styles included in the study were bar-chart and doughnut.

By asking to express a preference toward one of the two styles, 79% of the participants indicated bar-chart. The result was also confirmed by their first reactions to the

presentation of the two formats, where most of the participants (75%) deemed bar chart style to be clearer and more visible at first sight. The preference was explained by different reasons. Firstly, numbers regarding useful information are displayed in larger font and the content is better distributed if compared to doughnut style. In addition, arrows were appreciated because they indicate the direction to follow for reading the information. Finally, colours made the experience more pleasant with respect to a white background (higher contrast), and grids give a more understandable structure to the information.

On the other hand, the essentiality in providing information by using doughnut was also appreciated by some participants, as well as the idea of fullness of having achieved a goal given by the circularity of the shapes. However, many adults reported problems in reading numbers the small and hardly visible font. In addition, the high contrast between the doughnut and the background (too white) created by the choice of colours and the difficulties in differentiate the two types of oranges used influenced participants opinion.

Overall, the attention of the users was mainly caught by structure (26%), by the colours (26%) and by the larger font (17%) used in displaying information in the bar-chart style. Furthermore, users mostly agreed that the colours are good in Pension Tracking System Interface, even though orange might be confused with other companies.

General opinion

Before starting the "think aloud" exercise, the interviewers asked some warm-up questions to introduce the topic and to have a better understanding of the reason why respondents decided to activate an integrative private pension. It emerged that most of participants preferred to save a little bit at a time, mainly for economic reasons and for future uncertainties, due also to the unsecure amount of the state pension. An additional reason was related to taxes, since it is possible to deduct/subtract the amount of the integrative pension. Other participants activated the private pension because it was suggested by relatives, colleagues, friends, or by a bank or insurance agent.

Overall, all the people who opened a private pension deemed to be satisfied and shared the expectation of ending up with a good pension income in the future.

Regarding the user experience of the navigation of the Pension Tracking System mock-ups proposed, a general positive feeling was reported by interviewees. The total number of participants described PTS as a new solution that can be a useful tool in the near future. In addition, they evaluated the overall user experience as intuitive, and the information provided easy to understand.

The majority confirmed that those system would allow them to make better and informed decisions, but the sources of information must be official to build trust in the online environment. However, 13% of the respondents, did not completely agree on the idea that those systems are useful and helpful in making decisions. This feeling is mainly explained by the educational level which can play a big role in the understanding of such solutions and information. A Romanian interviewee expressed a feeling of concern due to an average poor financial educational knowledge of his fellow countrymen, which was also confirmed by other participants.

Furthermore, from the "think aloud" exercise, we were able to identify some missing elements that should be added in PTS. Forecasting models and graphs showing the evolution of the pension over the years (% of the breakdown of pension by source) were deemed significant in the retirement decision making. Respondents suggested also to insert some references about the current legislations or links to other official websites where it is possible to download or read informative documents. Finally, being able to

simulate user's future monthly pension income by playing with the age and the amount of pension, would make the experience more interactive and dynamic.

To conclude, on a scale from 1 to 10, all the mock-ups have been positively evaluated. In general, the bar chart style was preferred to the doughnut by interviewees who assigned higher values to each option with this style. Option C, designed with bar chart, gained the highest average score (8.58 out of 10), followed by Option B (7.92 out of 10) and Option A (7.21 out of 10). Regarding mock-ups with doughnut style, Option Awas evaluated with the lowest score (7.00 out of 10), while Option B and C scored 7.38 and 7.58, respectively.

4. Eye-tracking experiment and survey

4.1 Objectives

The eye tracking experiment brings additional evidence that complements the results of the desk research and the qualitative interviews. Through innovative techniques, this activity provided important evidence for the second and third objective of the study. Namely, the experiment assessed how consumers perceive the experience in navigating pension tracking system and their reactions to the information presented in the landing page and in the pop-up. By comparing the self-reported answers from the survey with the actual behaviour measured during the experiment, we were also able to fill the gap between participants' behaviours and perceptions by verifying which information effectively caught users' attention.

The techniques used were an eye-tracking system and a software for the facial recognition of the emotion perceived, that can measure visual-explanatory behaviour, emotions aroused during the browsing behaviour of the proposed web page, and consumer perception of content complexity.

Through these techniques, we measured eye movements/gaze as participants watch the mock-ups of the PTS, and in parallel the associated emotions. In this way, the measurements obtained allow us to determine which sections are read, and which are ignored (e.g. income, total savings etc..), and what emotions surface while participants see and read information provided. These measures are used as proxy for attractiveness and level of interest for specific features of the pension tracking systems

4.2 Methodology

The eye tracking experiment has been conducted remotely using only 3 mock-ups with a bar chart style. This is because the mock-ups designed with doughnut style were discarded after the qualitative interviews, according to participants' preferences and opinions. The experiment has been carried out in the same 3 European countries of the qualitative interviews(Italy, Spain and Romania).

For the survey a sample of more than 200 participants has been selected in each of the 3 countries (Italy, Spain and Romania), for a total of 711 respondents, aged between 45 and 60. The eye-tracking experiment involved a smaller sample which allowed us to achieve a sample size of 77 "highly reliable" eye tracking sessions. In the recruitment phase we followed the same age range of the survey (45-60 years old). The sample was balanced by gender and as much as possible by other socio-economic parameters (i.e., educational level). All subjects had to be familiar with the complementary pension's topic (either with plans activated or interested in doing so in the future).

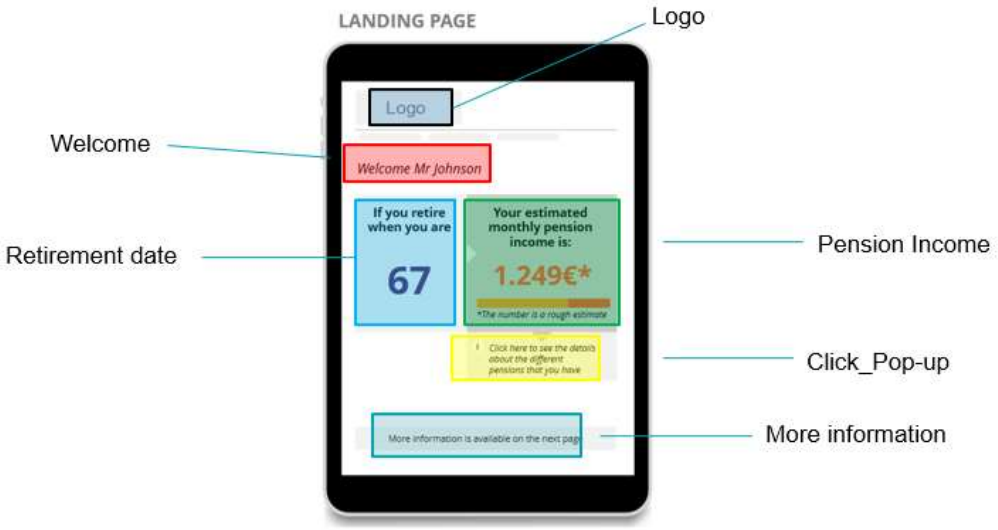
The main issues explored during the eye-tracking experiment and the survey are:

- how many people looked at the mock-ups, after how many second and for how long. (**Eye-tracking**)
- Stated preferences for given options, breakdown by level of financial literacy, understanding/usefulness of key concepts included in the different versions. (**Survey**)

The techniques used are based on the collection through the remote PC video camera of the participants' eye gaze position and their concurrent emotional expression on the screen attending the task at hand. A preliminary calibration session allows to precisely tune subjects' video camera to their movements once specific conditions for lights and posture

of the head have been checked in order to remove any possible artifacts from the data collection. The metrics used measured the percentage of the eye-gazes within Areas of Interest (AoI) that have particular meaning in the interpretation of the results (Figure 4).

Figure 4 Example of specific areas of interest - landing page



Source: author's elaboration

For the scope of the study, four metrics were applied in this experiment. A detailed explanation of them is outlined in Table 1 Metrics of Eye-Tracking Experiment

The metric "seen by" and "time until noticed" helped us in understanding whether each AoI was attractive or not. Those measurements provided information regarding the areas that were noticed by participants, and which one was the first to catch their attention. "Time viewed" and "number of fixation" informed about participants' interest for the different content, by making explicit for how long they paused their gaze on a specific area and how many time they repeated the action.

Table 1 Metrics of Eye-Tracking Experiment

Name of the metric	Explanation of the metric
Seen by, % (percent_fixating)	Percentage of how many of the respondents that saw the stimulus actually saw the AoI.
Time viewed, seconds (avg_time_fixating)	The average amount of time that a respondent spends on an AOI. If the respondent did not see the AOI, they are not included in the statistics. Calculation: The sum of the (end - start) sub-periods of times for each participant where the fixation overlaps the AOI in X and Y and time for a least a sub-period of the fixation for all participants with the result divided by the number of total participants who had at least 1 fixation within the AOI. If a participant did not see the AOI, they are not included in the statistics.
Time until noticed, seconds (avg time to first fixation)	The average amount of time it takes for a respondent to see an AOI. Respondents that does not see the AOI will not be included in the

	statistics. Calculation: For all participants who have at least 1 fixation which overlaps in time and space for at least a sub-period of this AOI, calculate the elapsed time from the onset of the stimulus to the start time of the first fixation where it overlaps with the AOI. Participants who do not see the AOI are removed from the calculation. If an AOI starts after the beginning of the stimulus, fixations which are located inside the AOI before it starts or after it ends are not counted.
Number of fixation *(num fixation)*	The amount of total fixations inside the AOI. Calculation: For all fixations, if the fixation overlaps the AOI in x and y and in time for at least a sub-period of the fixation, increment the number of fixations for this AOI.

In addition to the eye tracker measurement, for each solution the **emotional engagement** of the respondents is measured through a facial recognition system, which returns information about the assumption of up to six different emotions experienced during the reading of the contract under time pressure. Disgust, Fear, Joy, Perplexity, Sadness, Surprise, Neutrality are the dimension of emotions explored.

In the landing page, we drew specific AoI, according to the information shared in each version. Generally main AoI observed are:

- Logo,
- Welcome message,
- Monthly pension income,
- Retirement date
- Click pop-up
- More information

The experimental setup is the same among the three countries and it is designed as follows.

First, participants see the landing page for each of the three different solutions for a maximum of 10 seconds and they have the opportunity to interact with the page and click for getting more information. Second, the pop up will appear automatically and it will be shown for 7 seconds (styles will be randomized).

After the eye tracking, each participant was also asked to answer a short questionnaire (6.4 Annex IV – Experiment Questionnaire).

4.3 Results

In this section of the report, we summarize the results of the eye tracking experiment and of the follow-up survey, further details can be found in **6.3 Annex III** – Eye-Tracking Experiment Statistical results.

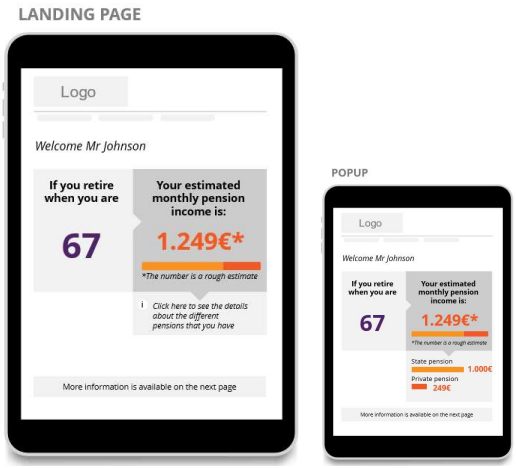
Each of the three mock-ups has been divided in specific Area of Interest and four indicators (eyeball/seen by, time viewed, time until noticed, and number of fixation) were used to measured attractiveness and interest of participants, as explained in the previous paragraphs.

The similarities and differences among countries are presented. Specifically, results from the eye-tracking experiment are shown in an aggregate way, since no significant country differences have been detected, while the survey results are presented with breakdown by country, due to the differences observed.

General Results of the Eye-tracking experiment.

Considering the heatmaps and the results from the facial coding software, we can state that for Option A (Figure 5), the Areas of Interest containing the most relevant and useful information (e.g. projected income, retirement date) were seen almost immediately by participants. Indeed, they were identified in less than one second. Furthermore, respondents spent a quite good amount of time reading or fixing them. Those findings are also in line with results from the qualitative interviews, where simplicity and clarity of Option A was appreciated by participants.

Figure 5 Mock-up - Option A

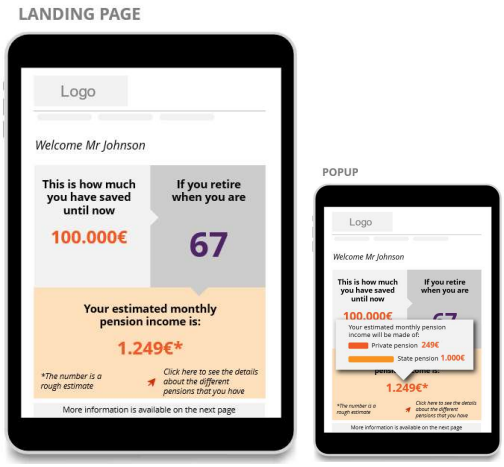


However, less efficacy was detected for the pop-up which did not attract participants' gaze if compared to Option C. This is demonstrated by the fact that during the eye-tracking experiment the users noticed the state/private breakdown only after many seconds. On average 4.58 seconds were needed in Option A, while the same information has been identified in approximately 2 seconds for Option C. Additionally, the attention caught by this content was limited since on average participants to the experiment spent less than a second on the pop-up. Once it automatically appeared and it was shown for 7 seconds, in Option A the amount of time used to read the AoI related to different pension sources was extremely minimal.

Option B displayed an additional information regarding total saving (Figure 6).

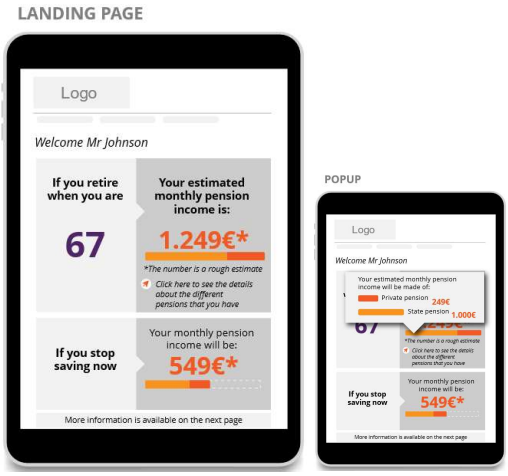
The eye-tracking results showed that total saving was the first AoI viewed by user, but taking the average time spent on each area of interest as a proxy for attractiveness, it is possible to state that total saving attracted less interest compared to the projected income, despite the not ideal position (bottom). In fact, on average participants focused their attention on the area showing the total amount of saving, only for 2.42 seconds versus 2.82 seconds for future income. Possibly, this is due to the top-left position of the total saving, and since we conducted the experiment only in countries with a sinistrodextral reading system, we believe that top-left is the first area where people look at once on a landing page.

Figure 6 Mock-up - Option B



When designing the Option C mock-up (Figure 7), we decided to include the estimation of the monthly pension income of a person that stops saving immediately, that we identified as "current projected income". As already assessed during the qualitative interviews, this type of information was deemed as not interesting by younger people, but those who were interested looked at it, paying more attention and spending on average more time than viewing other areas.

Figure 7 Mock-up - Option C



As above mentioned, a big role is played by the position of the information. Therefore, considering that information related to projected current income were placed at the bottom-right of the landing page, participants struggled to find it. On average 2.83 seconds were needed to spot the projected current income, while 0.64 seconds were sufficient to view the retirement date, located at the top-left of the mock-up.

Another consideration must be done regarding Option C mock-up. The pop-up was positioned at the top of the page, meaning in a better and more visible position than in the other mock-ups, meaning a decrease in the average time needed to detect it.

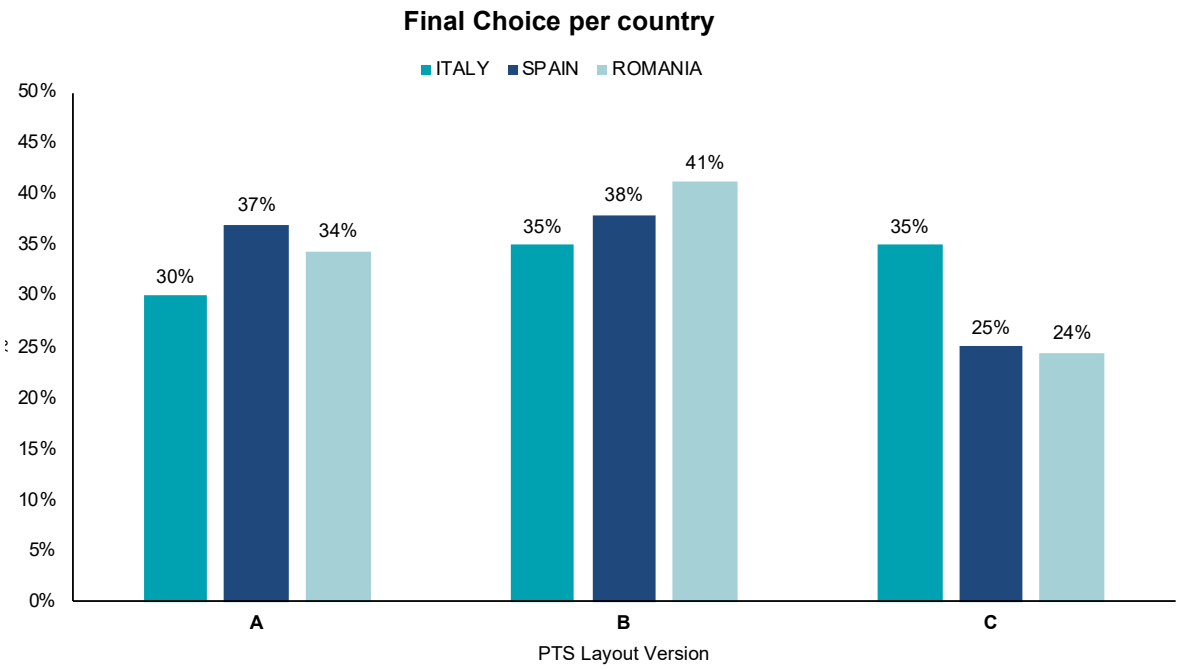
General results of the survey

In the short follow up survey, participants were asked to express their preferences on the different mock-ups and on the content. Answers were also analysed considering the financial literacy of respondents (low, medium or high). Participants were categorised in three groups by assessing their financial literacy through a 5-question questionnaire[1].

Option B mock-up, that includes information regarding the total accrued saving, the retirement age and the projected income was deemed to be the most appropriate for a possible website Homepage of PTS (38% of respondents). Option A obtained slightly less appreciation with 34% of stated preferences, while only 28% selected Option C.

The final choice of the preferred mock-up shows significant differences, when looking at results broken down by country. In particular, Italian respondents' preference was equally shared between the three different options proposed (Figure 8Figure 8 Which option would you chose as the best one for the pension tracking system? (% by country). Results from Spain highlighted a tendency to prefer Option A and B, while Romanians have a stronger preference for option B that reached the consensus of 41% of participants. It is worth pointing out that when comparing the three countries involved in the study, the main difference emerged from the percentage of respondents that preferred Option C, if in Italy was up to 35%, in the other two countries barely reached the 25%.

Figure 8 Which option would you chose as the best one for the pension tracking system? (% by country)



As mentioned above, results are even more interesting if the financial literacy is taken into account. Through the 5-question questionnaire, we obtained that 29% of the sample (206 respondents) has a low financial literacy and 22% of respondents resulted to have a medium level (157 respondents). It is important to notice that almost 50% of the sample (46%) is highly financially literate (348 respondents) (Table 2).

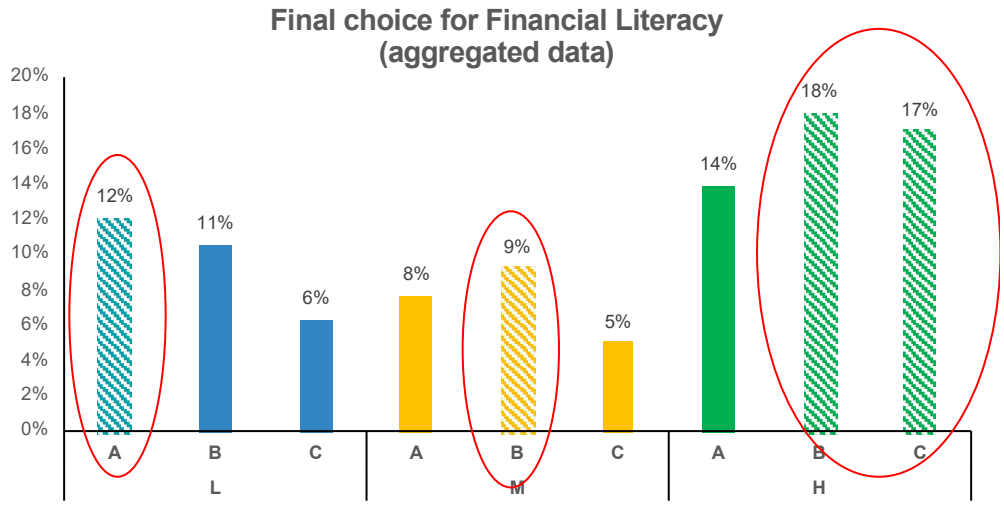
[1] https://gflec.org/wp-content/uploads/2015/11/3313-Finlit_Report_FINAL-5.11.16.pdf?x47626

Table 2 Financial literacy by country

	Italy	Spain	Romania	Total
Low	65	86	55	206
Medium	56	56	45	157
High	116	123	109	348
Total	237	265	209	711

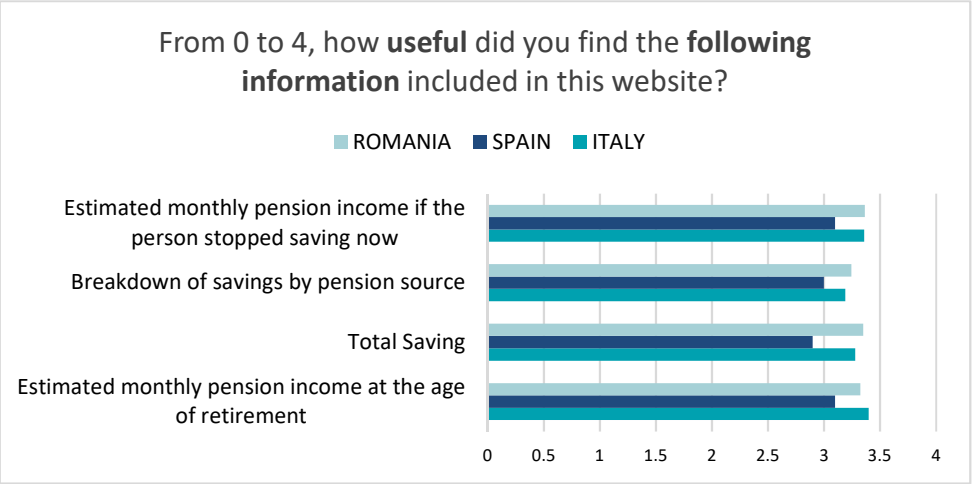
The aggregate data Figure 9 shows that those who resulted as the most financially literate preferred Option B (18% of respondents) and C (17% of respondents), only 14% of participants that were also financially literate chose option A. On the other hand, if we compare the results of respondents with a lower financial literacy, 12% of the total sample chose option A, and only 6% preferred option C. By cross comparing those findings with the results from the "think aloud" interviews, we could assume that having little knowledge of financial topics, led a certain number of respondents to opt for mock-up A, which was deemed to be more immediate to read and with little information to be understood. This point will be further elaborated, and it will inform the process of triangulation of results.

Figure 9 Final Choice for Financial Literacy



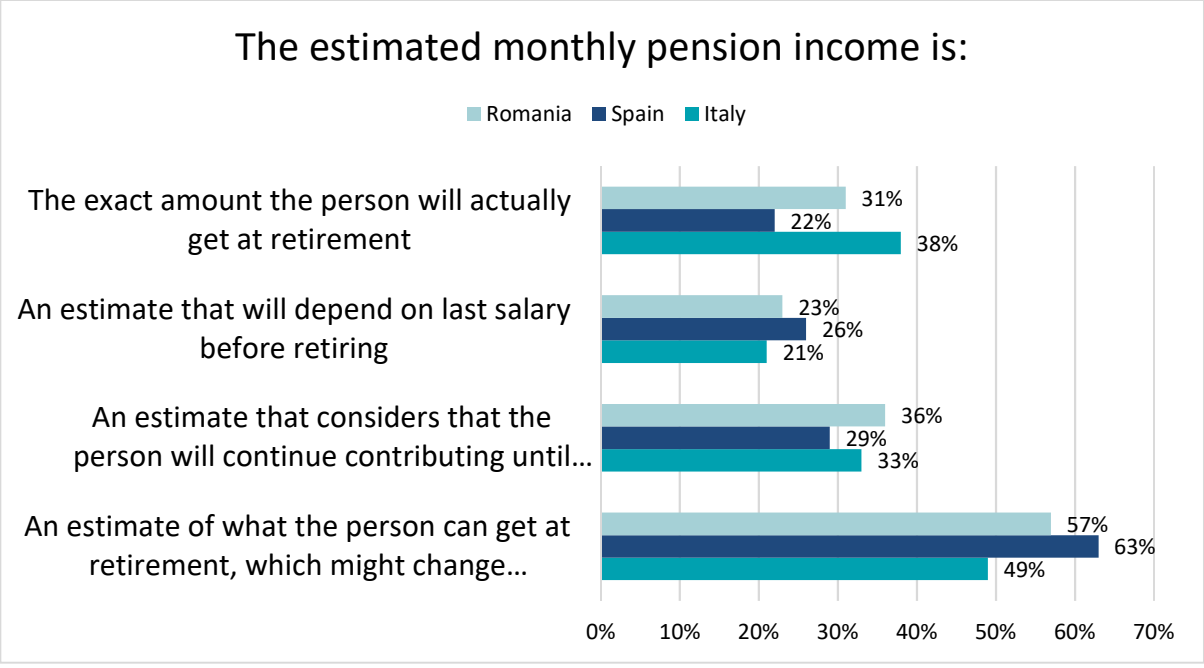
The usefulness of information (Figure **10**) proposed in the three mock-ups was assessed (estimated monthly pension income if the person stopped saving now, breakdown of savings by pension source, total saving, and estimated monthly pension income at the age of retirement). However, significant results did not emerge. Respondents evaluated all the information as highly useful (between 2.9 and 3.5 on a 0-4 scale).

Figure 10 Usefulness of the options



Despite the fact of considering all the information as very useful, we noticed a confusion regarding the numbers expressing the estimated monthly pension income (Figure 11). Some respondents believe that it corresponds to the exact amount a person will actually get at retirement or something that depends on the last salary before retirement. However, from a total of 713 participants, only 60 respondents were fully correct (8% of the total sample) and properly selected both options stating that it is only an estimation, and it might change according to several factors (e.g. inflation, RoI, etc..). It is also true that the number of respondents that provided a partial or fully correct answer increased to 64% if we consider all the participants that at least selected one of the two correct statements in the survey. Out of the total sample respondents, 187 gave at least one wrong answers (26%). Among them, 155 respondents gave also one correct answer, which correspond to 22% of the total sample. The participants that were totally wrong and did not select any of the correct answer amounted to 14% of the total sample.

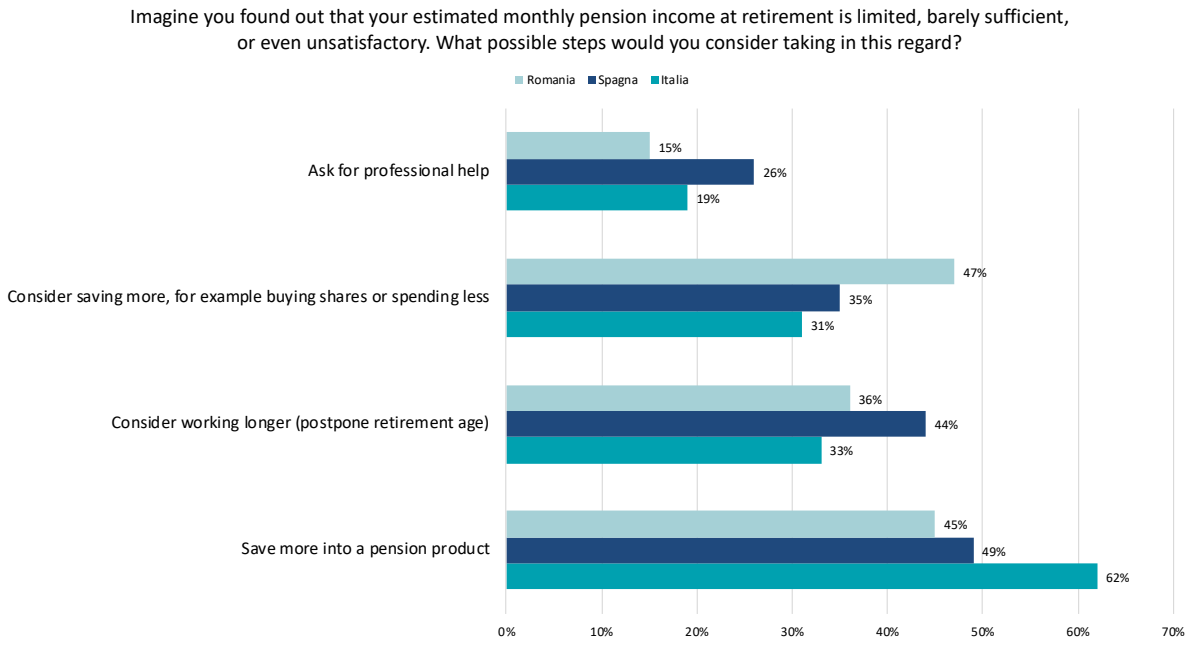
Figure 11 Understanding of estimates



Lastly, with the follow-up survey, we investigate which could be the possible steps that a person would consider after discovering that the estimated monthly pension income is limited or lower than expected, repondents were allowed to select one or more options (

Figure 12). Even though, this measure is not directly connected with the objectives of the study, we found out differences between countries, which indicate a divergent approach. Overall, 62% of Italian respondents affirmed that they would start saving more into a pension product, while 47% of Romanians would consider saving more, by buying shares or spending less. Regarding Spain, it does not emerge a strong preference toward one possible steps, 26% declared that he/she would ask for professional help (only 15% would do it), 35% could consider to start saving more, while respectively 44% and 49% would prefer to consider working longer and postpone the retirement age or to save more into a pension product.

Figure 12 Plans for insufficient estimated



5. Conclusions and triangulation of results

In this section we present the results of the triangulation of the evidence from all the tasks and activities carried out throughout the study. Based on the analysis and comparison of all the gathered data, the main conclusions of the study are explained below in detail.

First, participants in the study agreed that **national Pension Tracking Systems are new tools that can be effective in helping users to make more informed decisions** on pension savings and retirement. As shown by the results of the qualitative interviews, their potential is higher when the information source is official, and users have medium/high level of financial knowledge that allow them to understand the information provided. As also confirmed by the post-experimental survey, the financial literacy level influences the opinion on Pension Tracking System. Therefore, by also cross comparing those findings with results from the "think aloud" interviews, we can assume that those versions of the PTS containing more information is preferred by highly financially literate people. On the other hand, this interface might result difficult to be interpreted and understood by people that do not have such education and knowledge. In general terms, all the results obtained from the different phases and experiment carried out in the content of this study, lead to the conclusion that simplicity and conciseness, clarity and exhaustiveness are the key point to improve the quality of the user experience.

Retirement age and projected income are considered the most essential information in PTS. Both the activities carried out under Task 1 and Task 2, namely desk research, qualitative interviews, and eye-tracking experiment, highlighted the fact that such details are useful for user, in order to answer to two fundamental questions before making an informed decision regarding pension savings and retirement. Knowing when a person can retire and which will be the monthly pension income associated at a specific age is of a primary importance and it was confirmed by the fact that even simple PTS, providing this basic information in the landing page was appreciated by respondents. A consideration has to be done regarding the projected income since as a result of the follow-up survey, it emerged that the term "projected" or "estimated" might be wrongly understood as the exact amount a person will actually get at retirement. This is a critical issue, which should be explored in further research, as the concept of estimate in relation to projected income is key and cannot be misinterpreted by consumers that are using PTS to make informed decisions about their pension plans.

Total accrued saving is deemed to be an important information because, as highlighted by the qualitative interviews, knowing exactly how much a person has saved until now, generates a feeling of confidence and security in the user. However, the attractiveness and interest in this information might vary according to its relative position on the landing page. This is further reinforced by the results of the eye-tracking experiment where total accrued saving was the first AoI viewed and identified by participants, but the interest shown for such information was less if compared to AoI of projected income, where the eye gaze of participants stayed focused for a longer period. It is possible to state that the relative position of an AoI might vary the way a user perceives and receives an information. In particular, if a PTS is designed for countries with a sinistrodextral reading system, words, numbers and figures positioned at the top-left of the page, we consider reasonable to assume that they might, be seen sooner than any other information. It is worth mentioning the concern that emerged from the "think aloud" activity regarding personal data. In particular, participants disliked options that shows several private data immediately in the landing page, meaning that it would be better to have those details displayed in the pop-up or in a second page.

Estimate of the monthly pension income if a person stops saving immediately received mixed feedback from participants. On the one hand, it is not considered useful and interesting for young people who have many years left before retirement, as confirmed by the qualitative interviews. On the other hand, it becomes more interesting the closer the person gets to retirement age, mainly because the consumer may consider pre-retirement. The results of the eye-tracking experiment showed that only around 68% looked at this information, maybe also due to the position on the landing page. However, those who looked at this information were very interested, paying more attention and spending on average more time than viewing other areas. Based on the insights of the qualitative research, we can assume that these participants were indeed those closer to the retirement age.

Breakdown by pension source (i.e., private and public) was not considered of a primary importance. This information was shown through a pop-up message during the "think aloud" interviews and the eye-tracking experiment. We reach to this conclusion since, during the eye-tracking experiment, this area was seen for only few seconds by participants, meaning that they were not much interested in focusing on the pop-ups. The interest in this type of information increased when the pop-up appeared in a better place on the landing page, being more visible to respondents. It was the case of Option B and C, where it was shown in a central or top position. Also during the interviews, this information did not emerge as the most important, compared to the others shown in the landing page. Similarly, breakdown by pension sources of the projected amount of the monthly pension income is considered a valuable, but not primary information.

When asked about possible improvements of the PTS during the interviews, **participants were interested in some additional information.** For instance, they mentioned forecasting models with a slider on the retirement age that can be moved, and it would change the estimate retirement income. Moreover, some were interested in additional graphs showing the evolution of the pension over the years (% of the breakdown of pension by source), references to current legislations, and simulator of user's future monthly pension income by playing with the age and the amount of savings. All this information were not considered necessary for the landing page, but possibly useful in a second layer in a website.

By cross comparing results of the two activities carried out in Task 2, it is visible that style and **graphical elements plays an important role in attracting users and in stimulating their curiosity on specific elements**. Bar chart resulted to be more effective for the purpose of PTS, rather than doughnut. This result is corroborated by answer to one of the first question of the "think aloud" interviews. Almost 80% of participants (out of a total sample of 24) indicated bar chart style as the favourite option and defined it as more readable with schematic information. In addition, colours, larger font and a clear structure (e.g. grids and arrows) made the user experience more pleasant and fluid. This conclusion is particularly visible when observing the results of the qualitative interviews and comparing them with the results of the Eye-Tracking experiment. Information displayed in larger font attracted the attention of more participants, and the interfaces where information was better distributed on the main page (i.e., designed with a bar chart style) were preferred to those who do not utilised arrows to direct the reading or block to divide the different AoI (i.e., designed with doughnut style).

Lastly, as already mentioned above, the way information is distributed on the page and the **relative position** of a specific content might influence the grade of visibility and the possibility that users notice it.

6. ANNEXES

6.1 Annex I – Interview discussion guide

Style 1 (bar-chart)			Style 2 (doughnut)		
A (Landing page + popup)	B (Landing page + popup)	C (Landing page + popup)	A (Landing page + popup)	B (Landing page + popup)	C (Landing page + popup)

Introduction

Thanks for joining me in this project about pensions. We are working for the European Insurance and Occupational Pensions Authority which is part of the European Commission.

The European Commission wants to support citizens in making provisions for their retirement. One way to help people is to make sure they have full and up to date information about their future retirement income from the Government and from personal pension plans.

The plan is to introduce what's called a Pension Tracking System. While pensions are a complicated business with incomprehensible terms like the 'replacement rate' the people designing the Pension Tracking System want it to be simple, easy to understand, giving the information that people need and to be attractive.

The designers have come up with a number of different formats and we'd like to hear what you think of them. The interview will be divided in two parts:

1. **PART ONE**: we will focus mainly on the content of three different options of pension tracking system (both landing page and pop-up for each option). At the end of this part, you will have to select which option you prefer and consider clearer.

2. **PART TWO**: we will take the option you selected and then we will show you two different graphical style. In this part of the interview, you will have to focus on the graphical aspects of the two versions.

Is that clear? Do you have any questions?

PART 1 - CONTENT

Let's have a look at set of images. These are the same design, but they differ in the type of information provided. Please now focus on content only.

Figure 13 Option A

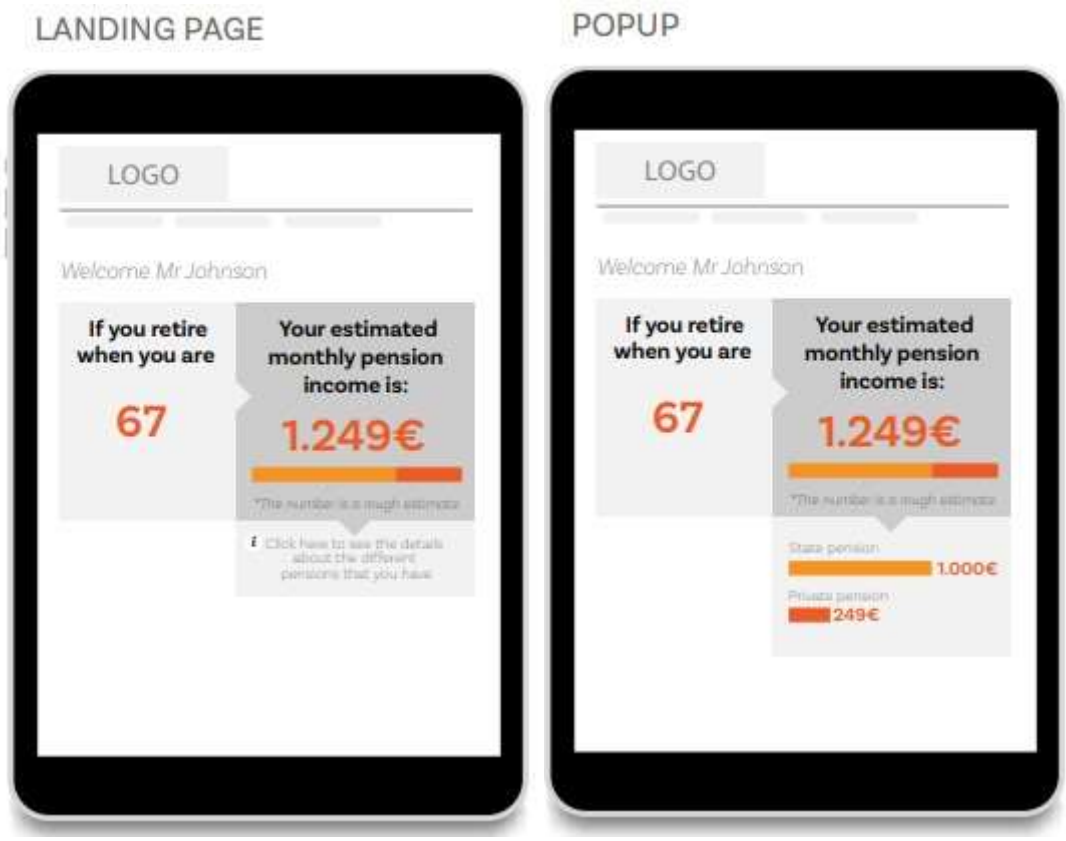


Figure 14 Option B

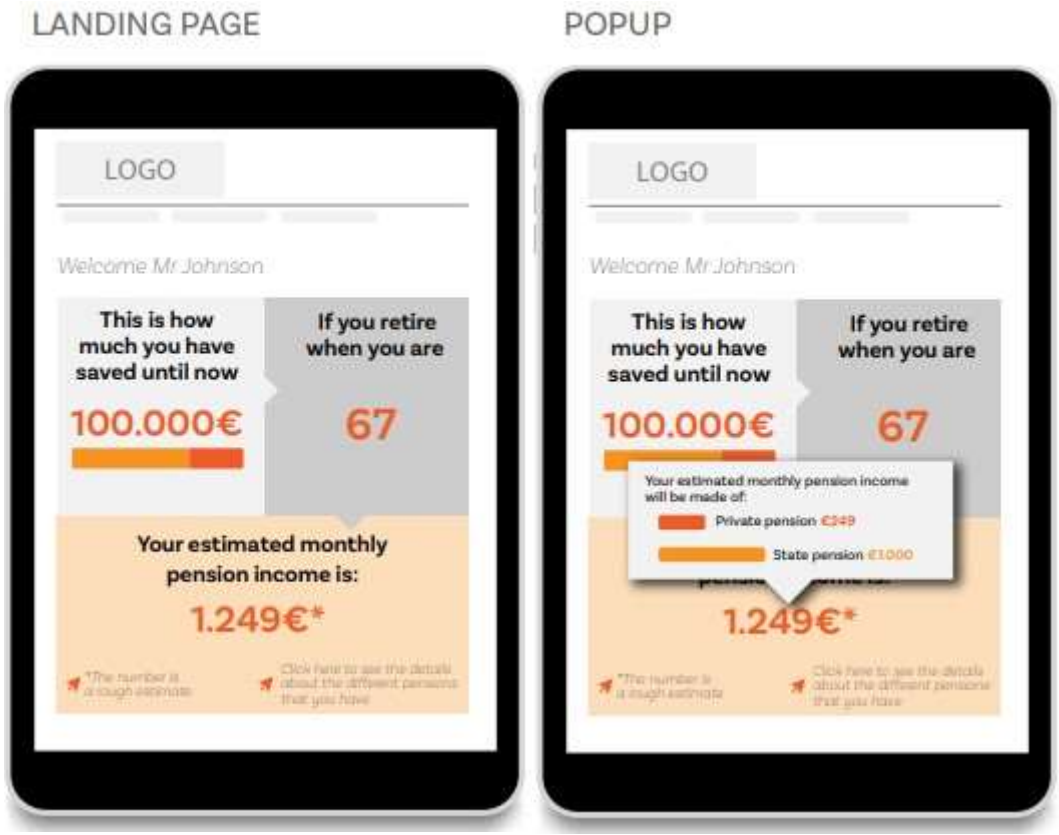
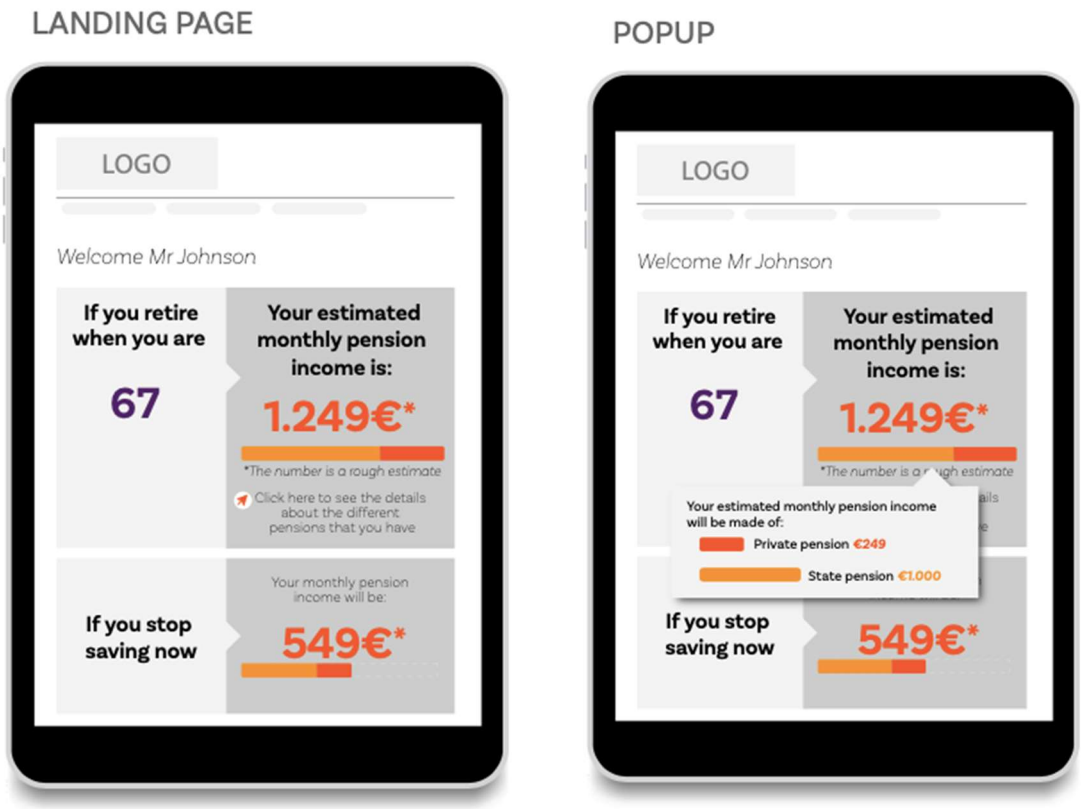


Figure 15 Option C



- Which one of these options do you prefer?
- Which one has the most understandable content?
- Which one has the least understandable content?
- Which one has the most useful information?
- Which one has the least useful information?
- Is there some relevant information you think is missing?

5. OK – now you've looked at a number of different options some with different bits of information including

- retirement date
- projected monthly income at retirement
- total savings/pension pot
- pension on retirement if the person stopped saving now
- breakdown of pension by source

To keep up to date with what's happening to your pension which of these bits of information do you think are essential?

And which of these should be right up there on the front page with the rest given as additional information on a second page?

Are there any that you would not be interested in?

PART 2 – GRAPHIC DESIGN

Now you will have selected which option you prefer in terms of understanding of the main concepts that should be presented in the PTS. We will show you 2 different graphical version and ask you some questions.

Figure 16 Mock-up PTS Style 1

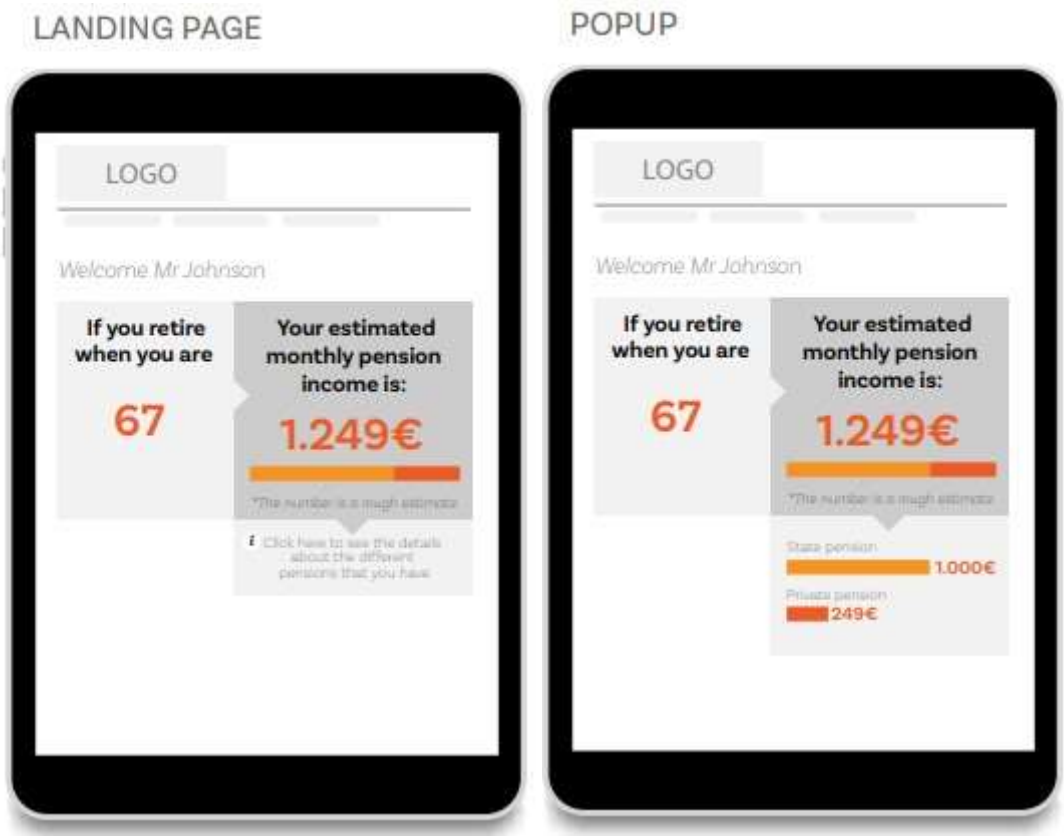
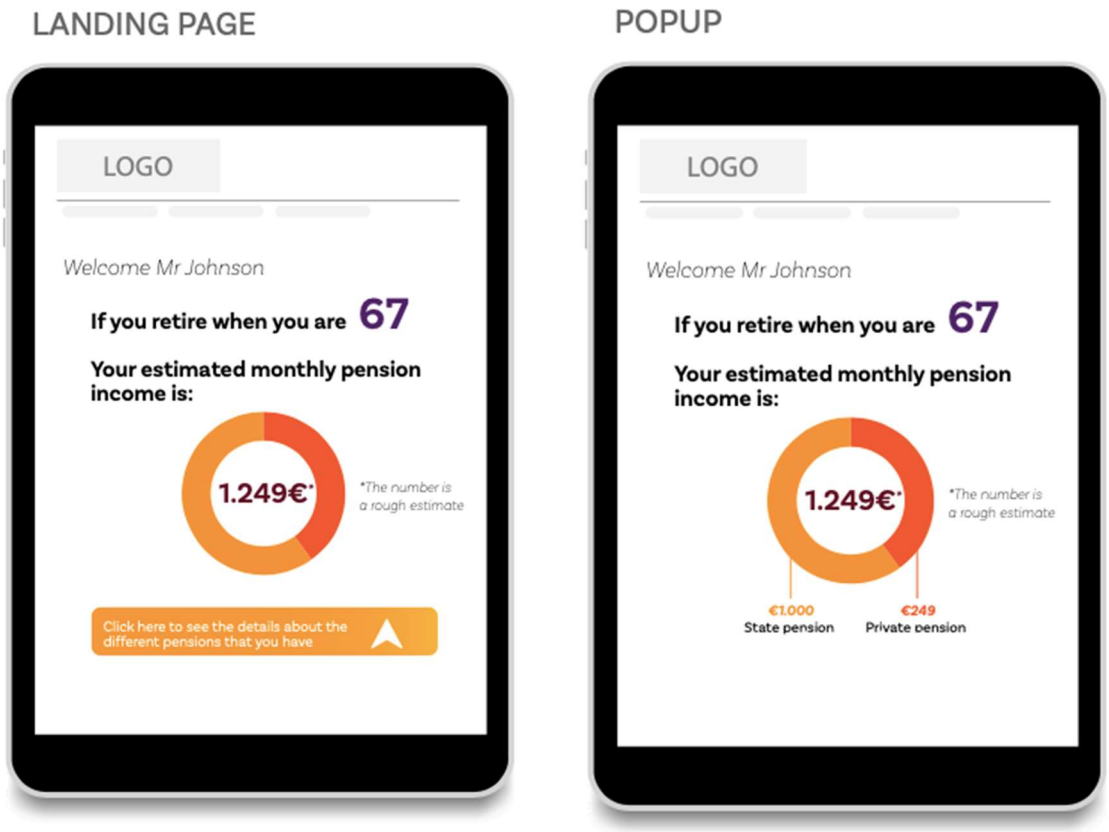


Figure 17 Mock-up PTS Style 2



- What is your immediate reaction?
- Which one is most attractive?
- And which is the least attractive?
- What is it about the most attractive on that caught your eye?
- And where does the least attractive one fall short?

2. Now what about the language, the wording

- Is it understandable, or could have been a bit clearer?
- Is there a particular word that seems a bit technical?

3. Just returning to the design

- What do you think about the balance of text and graphic, any views?
- And the colours – are they what you'd expect for a pension statement?

Thanks for commenting on all these designs –it is really appreciated. A final question – do you think we have missed anything or maybe done something a little better?

END OF TASK

6.2 Annex II – Qualitative interview results

Style

1. Which of these options do you prefer?	
A	8%
B	42%
C	50%

2. Which has the most understandable content?	
A	21%
B	29%
C	25%
All	29%

3. Which has the least understandable content?	
A	21%
B	17%
C	29%
All clear	33%

4. Which one has the most useful information?	
A	17%
B	38%
C	42%
All	4%

5. Which one has the least useful information?	
A	38%
B	21%
C	21%
All useful	21%

6. Is there any relevant information you think is missing?	
No	50%
Insert forecasting models	17%
Breakdown of contributions by source as a percentage	8%
How many years you have worked so far	4%
Info on fund performance	4%
A date for updating the data linked to current legislation	4%

Breakdown of pension by source in percentage	4%

7. To keep up to date with your pension which of these pieces of information do you consider essential?	
Expected monthly income at retirement	88%
Retirement date	46%
Breakdown by source	29%
Total accrued savings	29%
Expected monthly income if the person stops working immediately (*)	25%

8. Is there any information you are not interested in?	
I am interested in everything	29%
Expected monthly income if person stops working with immediate effect	25%
Pension distribution by source (*)	25%
Total savings accrued	17%
The date of retirement	4%

Added by us

	9. If you had to assign a score from 1 to 10, how much would you assign to each of these images?		
	A	**B**	**C**
Bar Chart	7,21	7,92	8,58
Doughnut	7,00	7,38	7,58

Content

1. Which was your first reaction when you saw these two formats?		
Bar-Chart	75%	It's clearer and more visible and the numbers are bigger
Doughnut	25%	It is easier to understand, more obvious

2. What is the aspect that has most attracted your attention?	
The structure of the bar	26%
The colours of the bar chart	26%
The larger characters of the bar graph model	17%
The bar graph	13%

The pie chart	9%

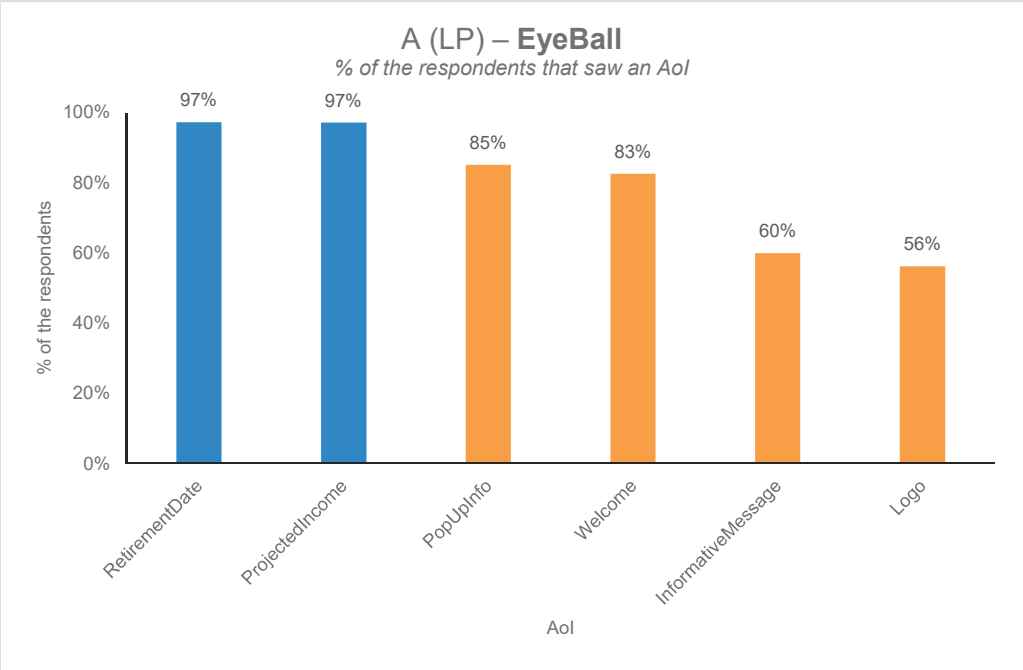
3. Of the two styles, which one do you prefer Why?	
Bar-chart because is clearer and easier to read, for dimensions/sizes and graphs	79%
Doughnut because is more immediate, clear and simpler with white background.	21%

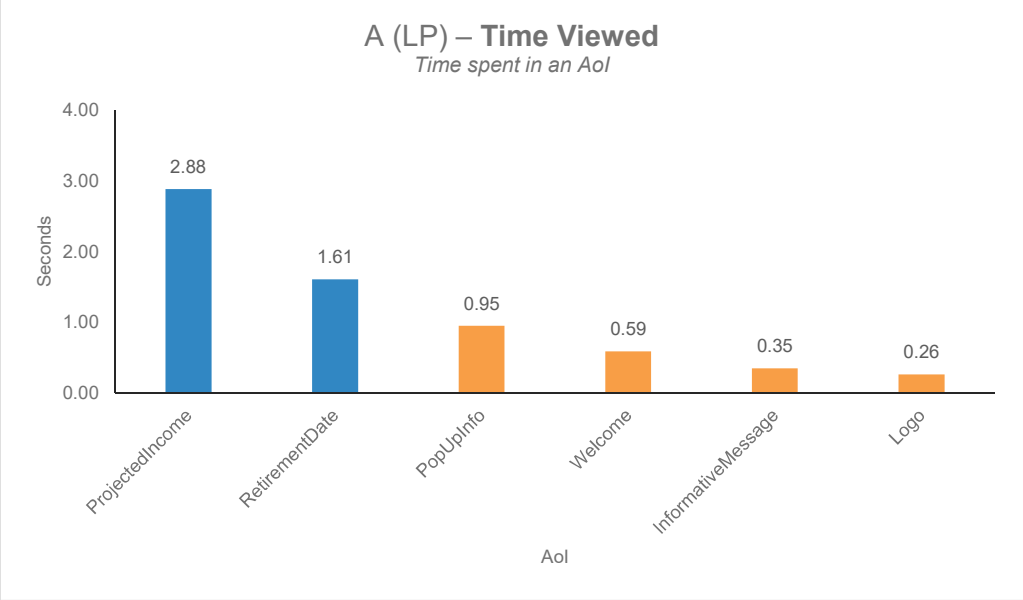
4. Are the text and graphics well balanced?	
Both	71%
Bar-chart	21%
Doughnut	8%

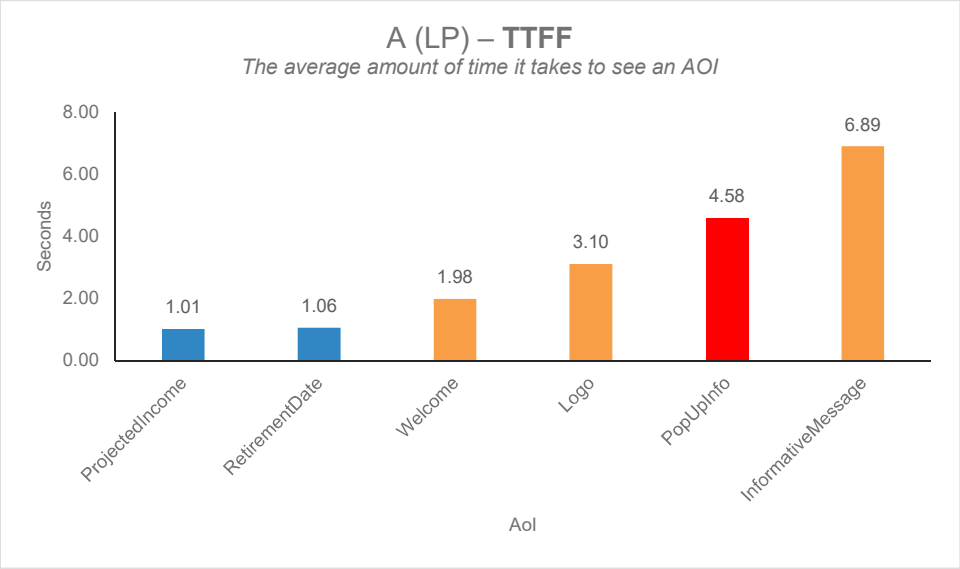
5. Are the colours what you would expect from a pension system interfaces?	
Colours are good	54%
Orange is associated with other companies	17%
I like them better in the bar pattern	12%
I would use more contrasting colours	8%
I would make it customisable	4%
I would put the amounts in red	4%

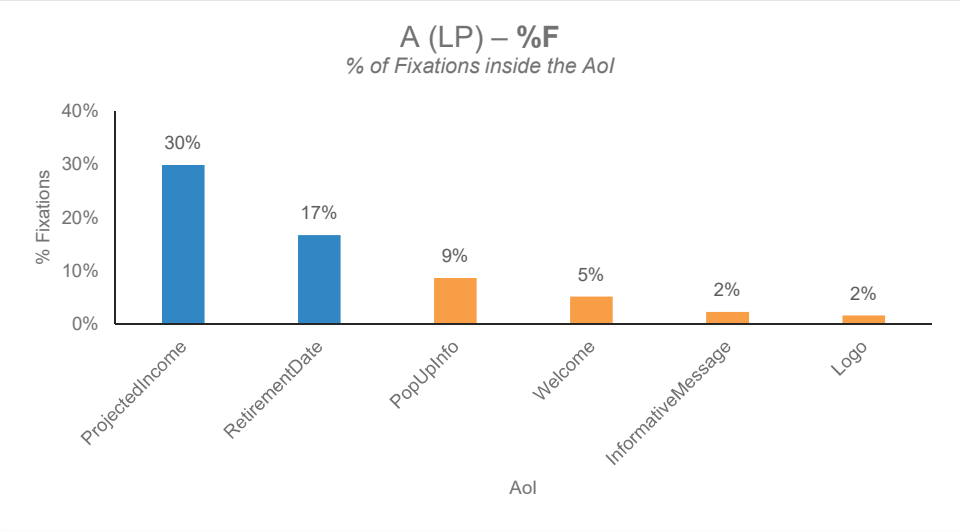
6.3 Annex III – Eye-Tracking Experiment Statistical results

6.3.1 Landing Page Option A

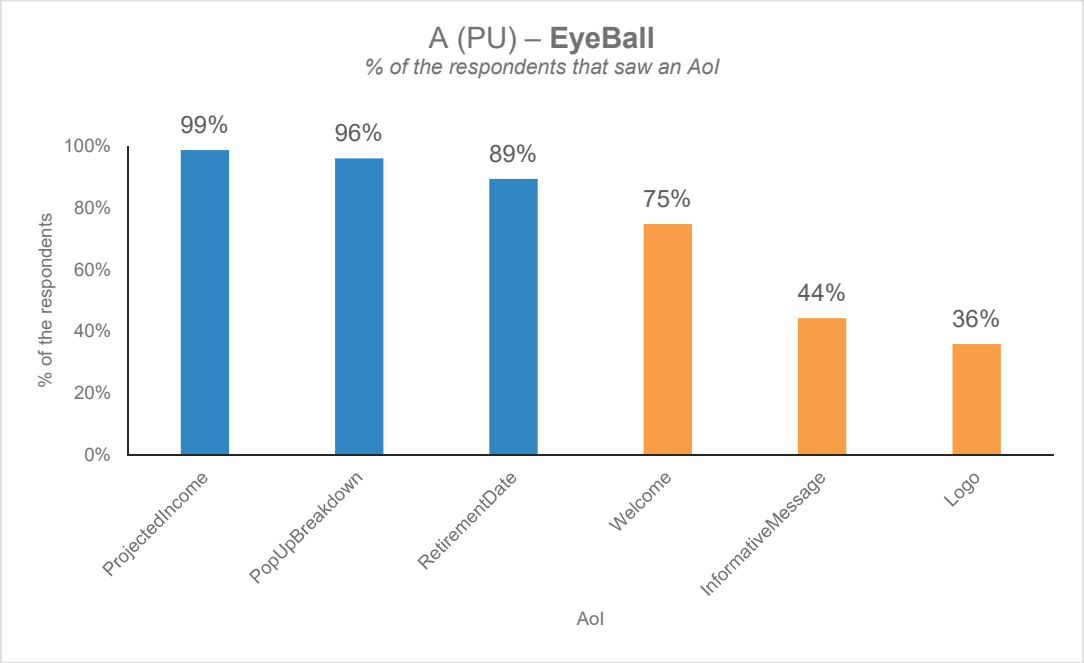


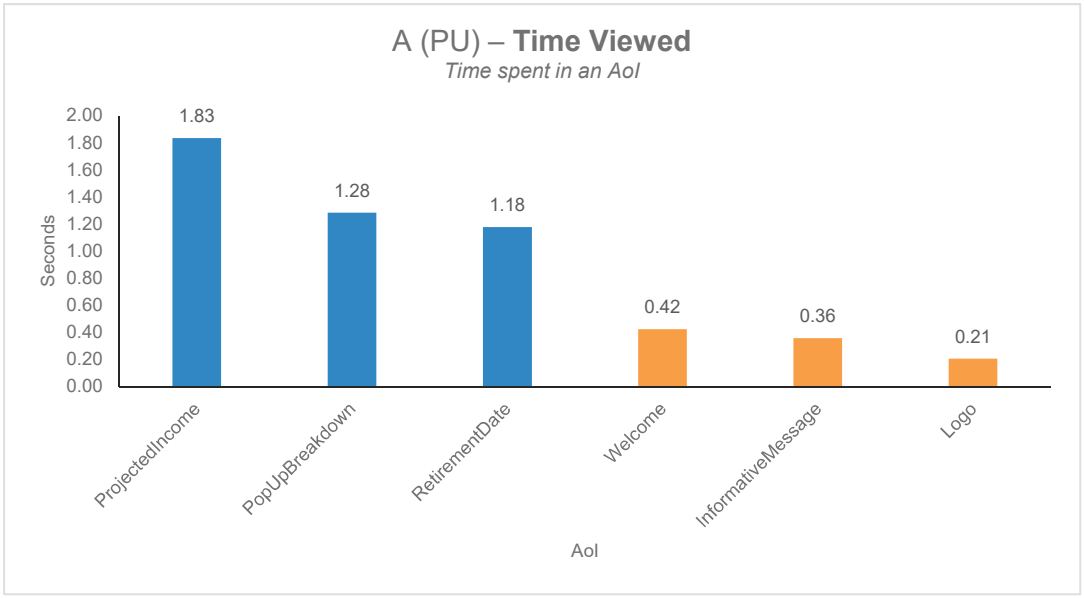


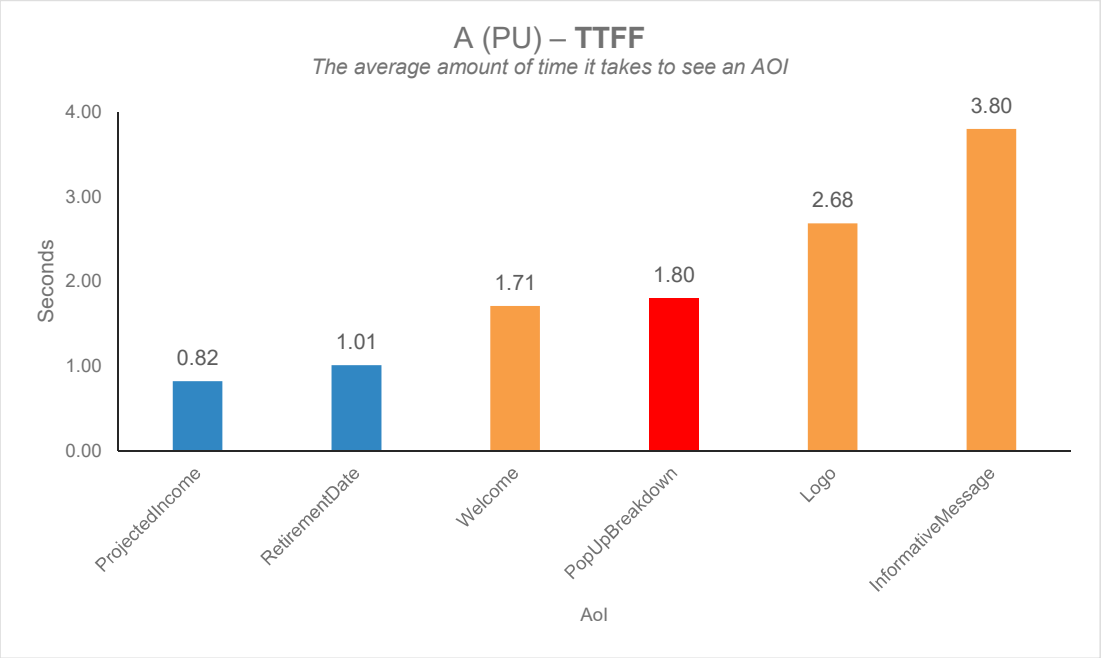

A (LP) – TTFF
The average amount of time it takes to see an AOI
Seconds
8.00
6.00
4.00
2.00
0.00
1.01
1.06
1.98
3.10
4.58
6.89
ProjectedIncome
RetirementDate
Welcome
Logo
PopUpInfo
InformativeMessage
Aol

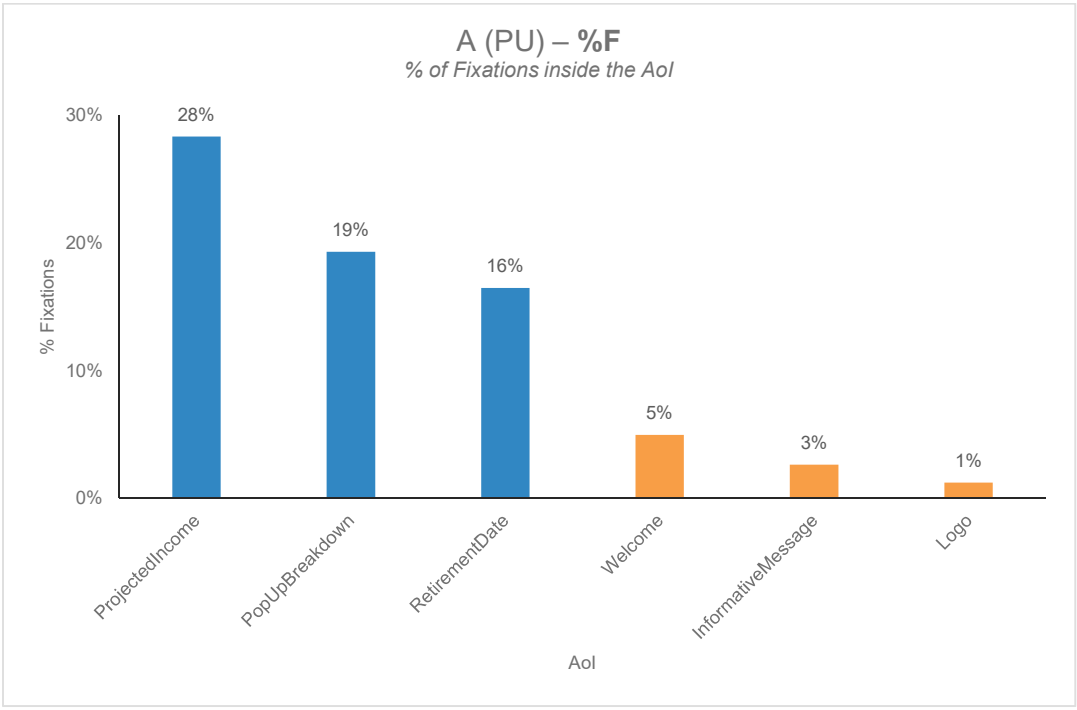

A (LP) – %F
% of Fixations inside the Aol
% Fixations
40%
30%
20%
10%
0%
30%
17%
9%
5%
2%
2%
ProjectedIncome
RetirementDate
PopUpInfo
Welcome
InformativeMessage
Logo
Aol

6.3.2 Pop-up Option A

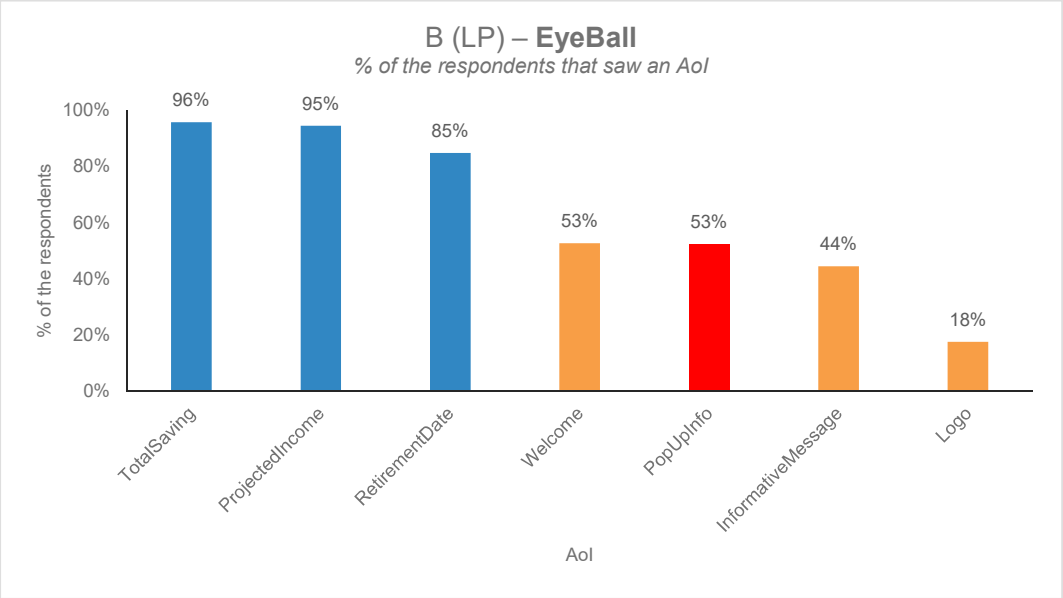


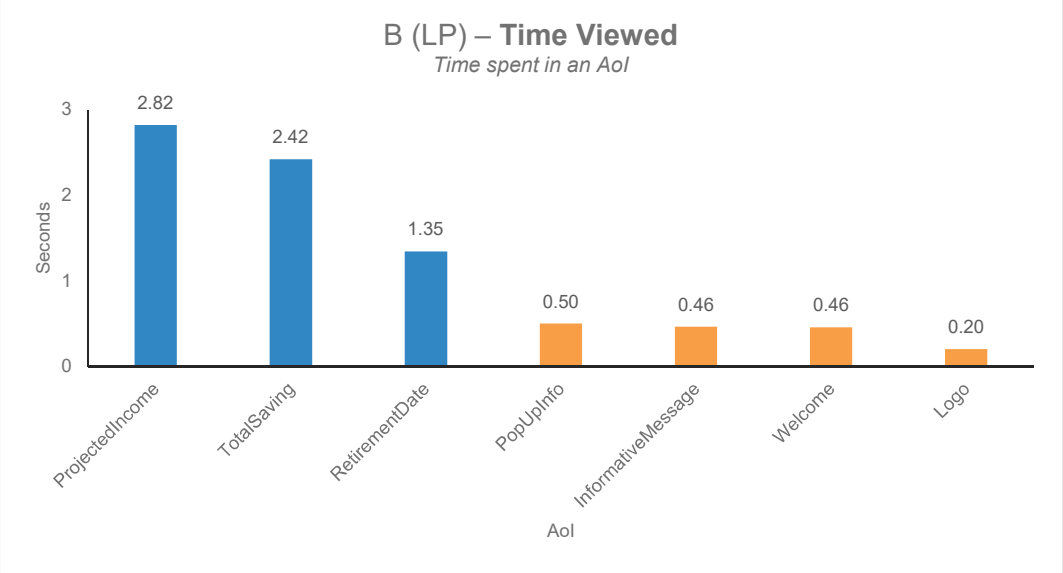


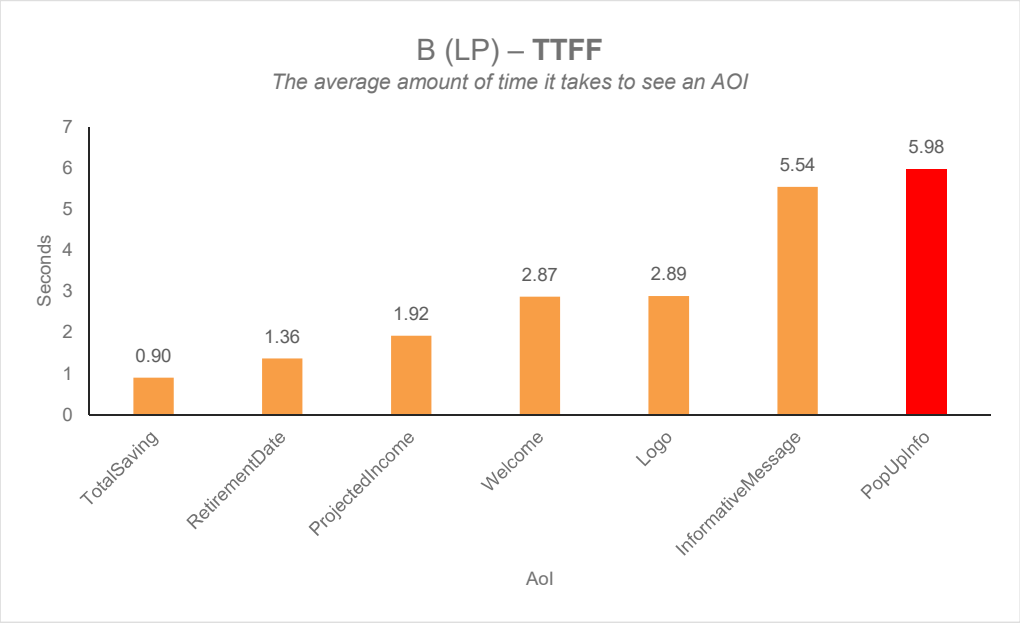

A (PU) – TTFF
The average amount of time it takes to see an AOI
Seconds
4.00
3.00
2.00
1.00
0.00
0.82
1.01
1.71
1.80
2.68
3.80
ProjectedIncome
RetirementDate
Welcome
PopUpBreakdown
Logo
InformativeMessage
AoI

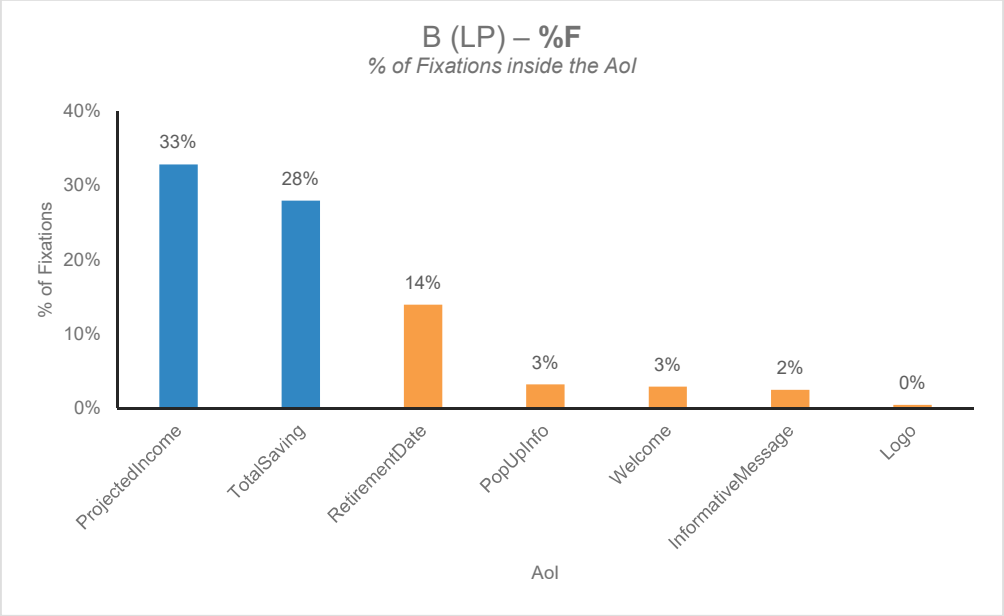

A (PU) – %F
% of Fixations inside the AoI
% Fixations
30%
20%
10%
0%
28%
19%
16%
5%
3%
1%
ProjectedIncome
PopUpBreakdown
RetirementDate
Welcome
InformativeMessage
Logo
AoI

6.3.3 Landing page Option B

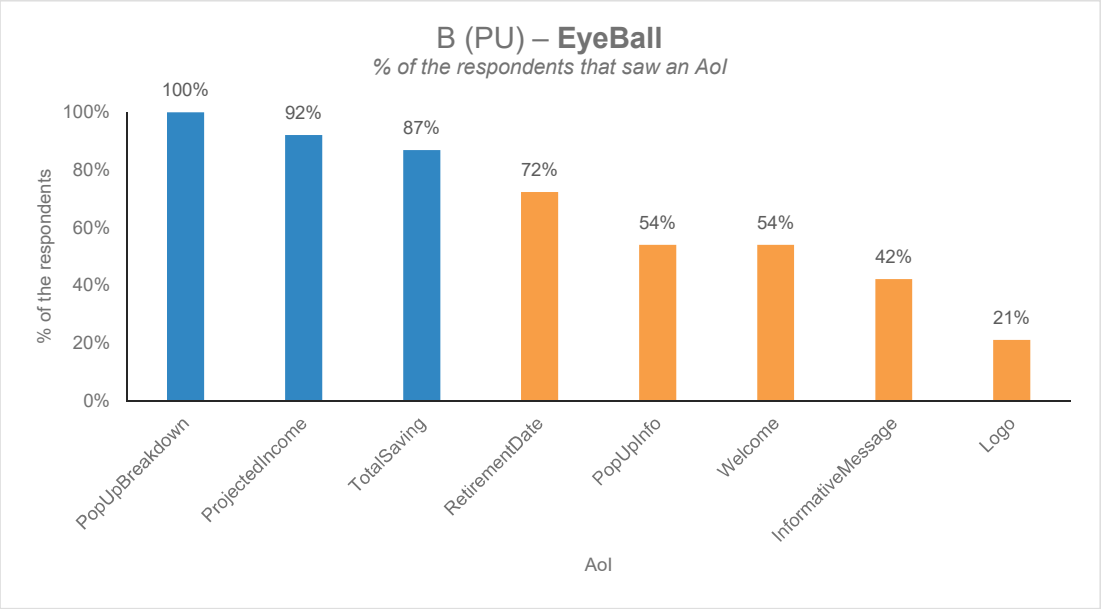


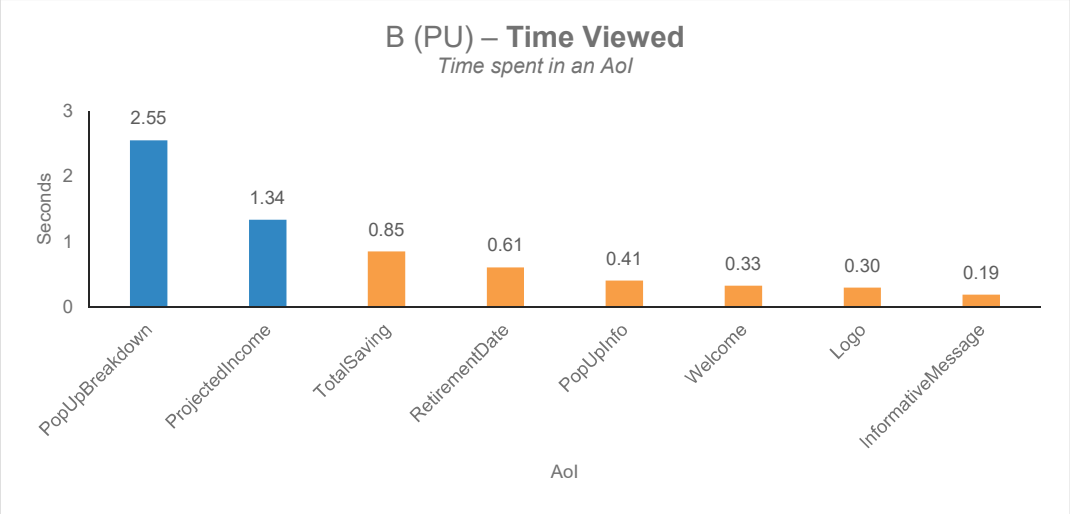


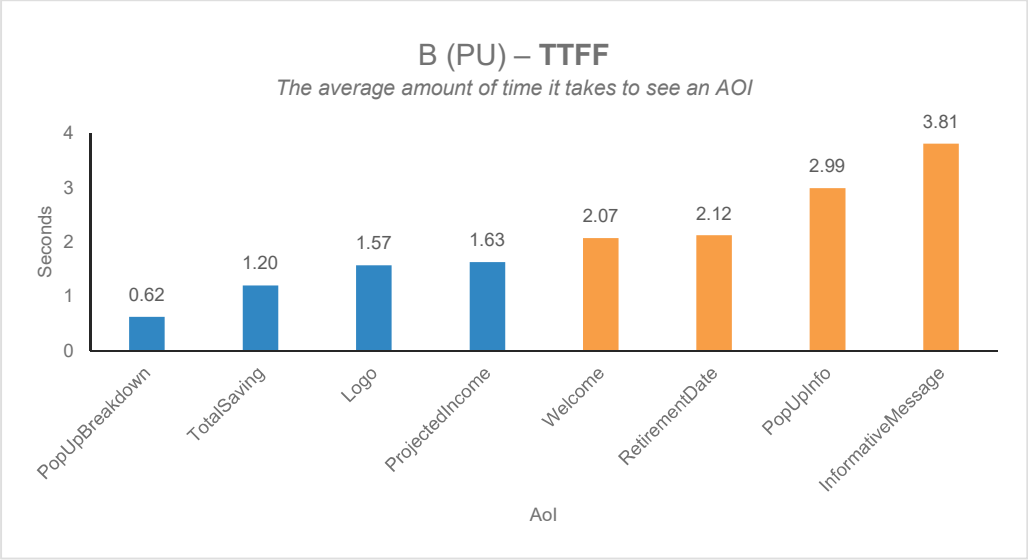

B (LP) – TTFF
The average amount of time it takes to see an AOI
Seconds
7
6
5
4
3
2
1
0
0.90
1.36
1.92
2.87
2.89
5.54
5.98
TotalSaving
RetirementDate
ProjectedIncome
Welcome
Logo
InformativeMessage
PopUpInfo
AoI

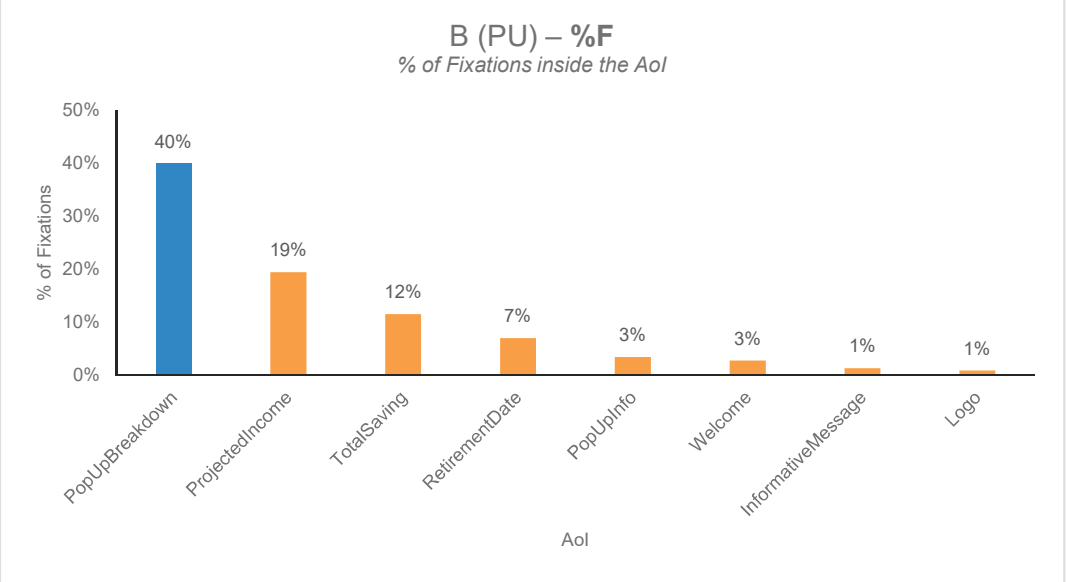

B (LP) – %F
% of Fixations inside the AoI
% of Fixations
40%
30%
20%
10%
0%
33%
28%
14%
3%
3%
2%
0%
ProjectedIncome
TotalSaving
RetirementDate
PopUpInfo
Welcome
InformativeMessage
Logo
AoI

6.3.4 Pop-up Option B

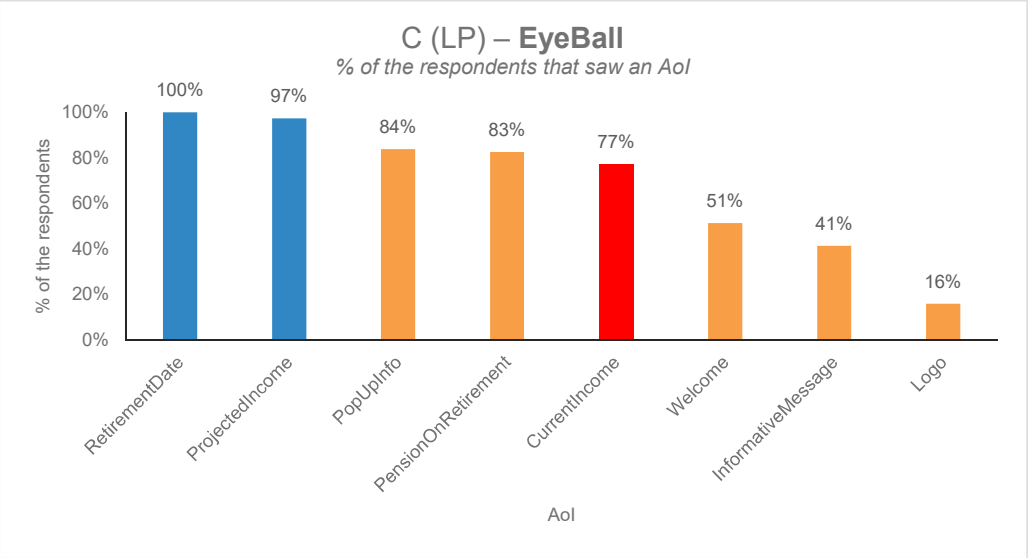


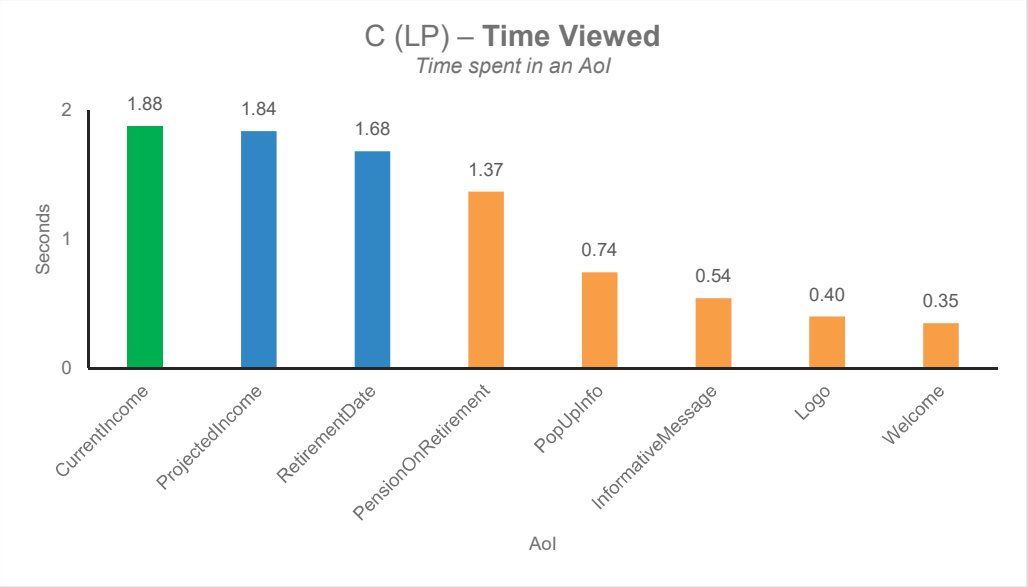


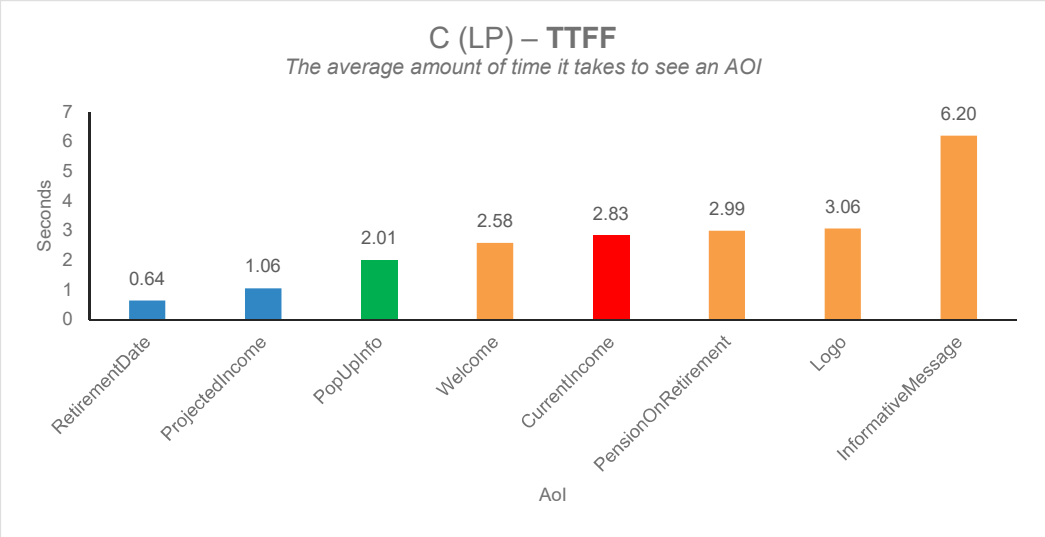

B (PU) – TTFF
The average amount of time it takes to see an AOI
Seconds
4
3
2
1
0
0.62
1.20
1.57
1.63
2.07
2.12
2.99
3.81
PopUpBreakdown
TotalSaving
Logo
ProjectedIncome
Welcome
RetirementDate
PopUpInfo
InformativeMessage
AoI

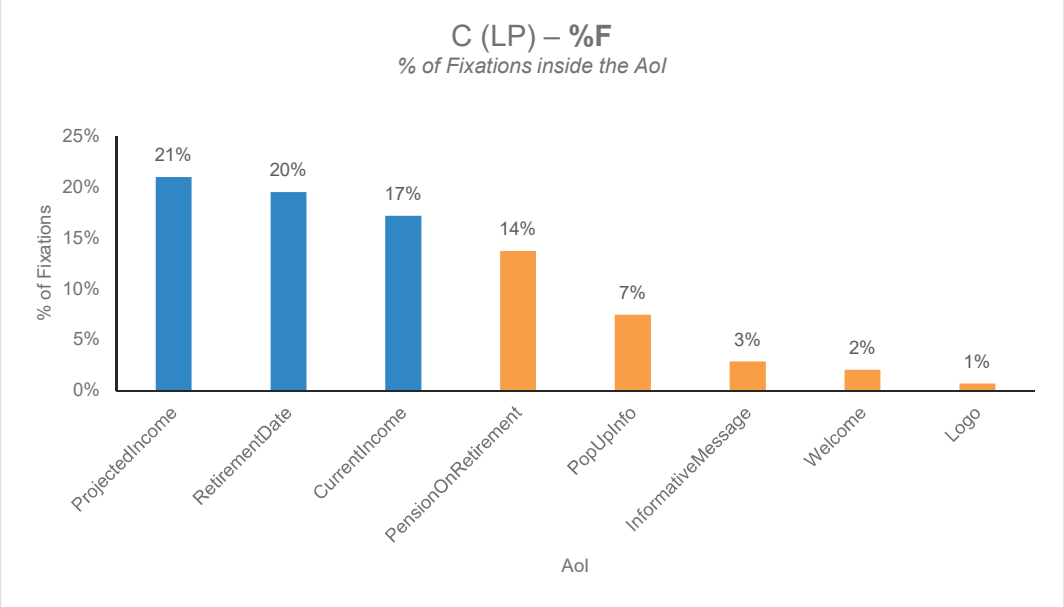

B (PU) – %F
% of Fixations inside the AoI
% of Fixations
50%
40%
30%
20%
10%
0%
40%
19%
12%
7%
3%
3%
1%
1%
PopUpBreakdown
ProjectedIncome
TotalSaving
RetirementDate
PopUpInfo
Welcome
InformativeMessage
Logo
AoI

6.3.5 Landing Page Option C

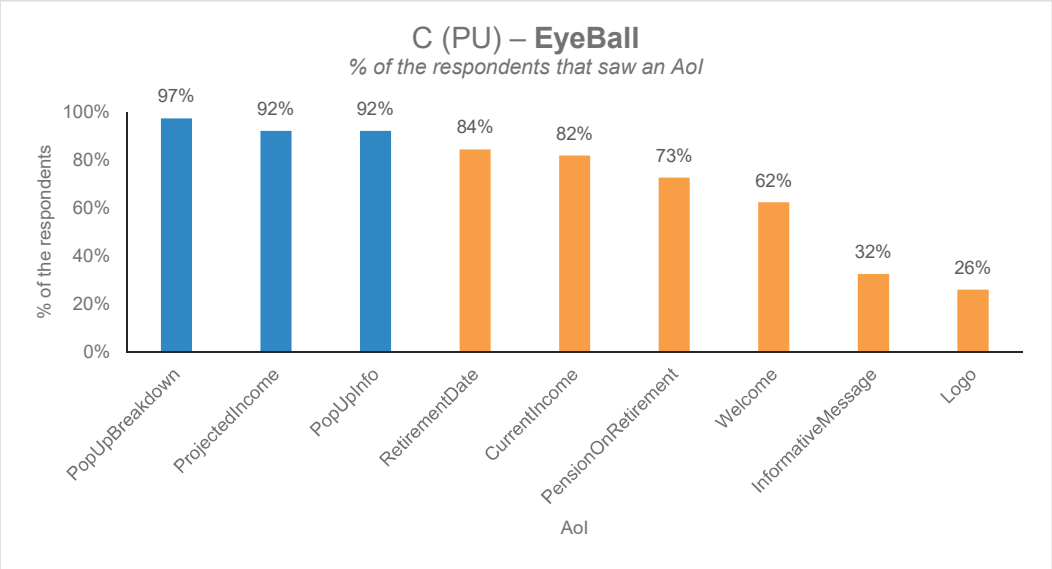


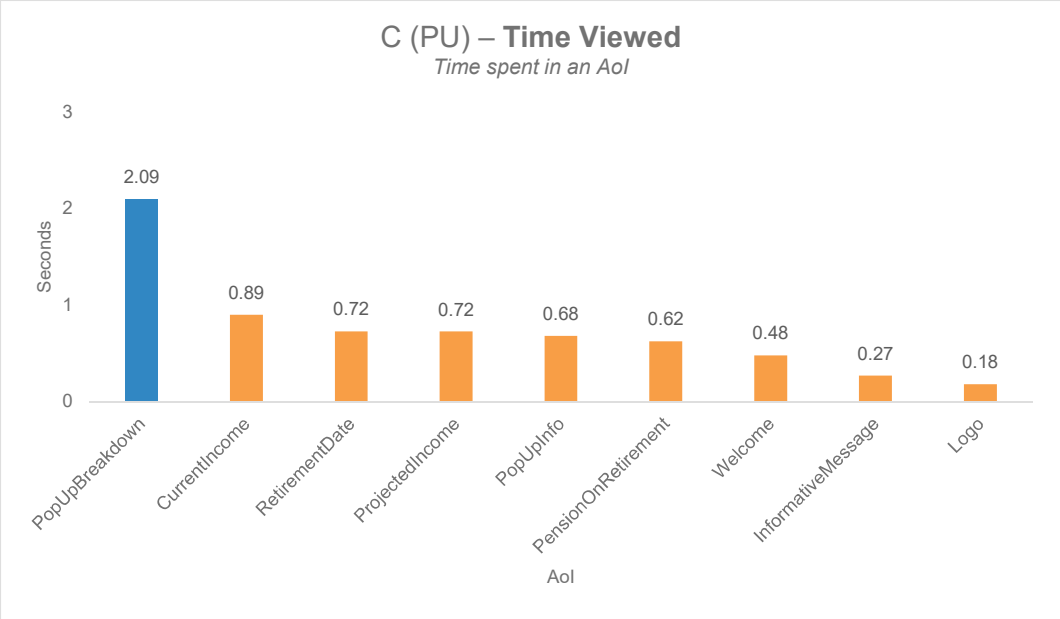


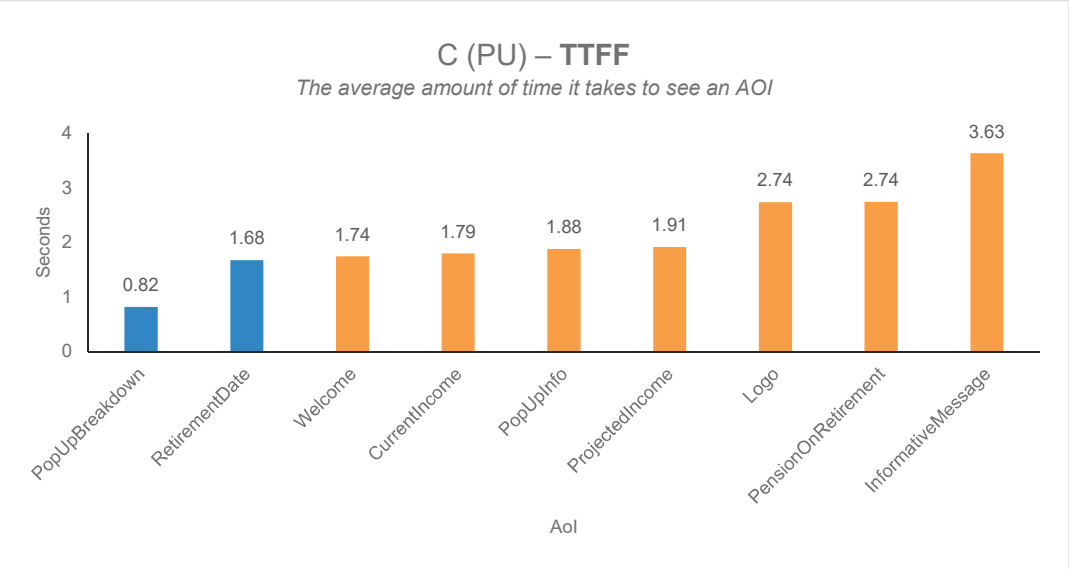

C (LP) – TTFF
The average amount of time it takes to see an AOI
Seconds
0
1
2
3
4
5
6
7
0.64
1.06
2.01
2.58
2.83
2.99
3.06
6.20
RetirementDate
ProjectedIncome
PopUpInfo
Welcome
CurrentIncome
PensionOnRetirement
Logo
InformativeMessage
AoI

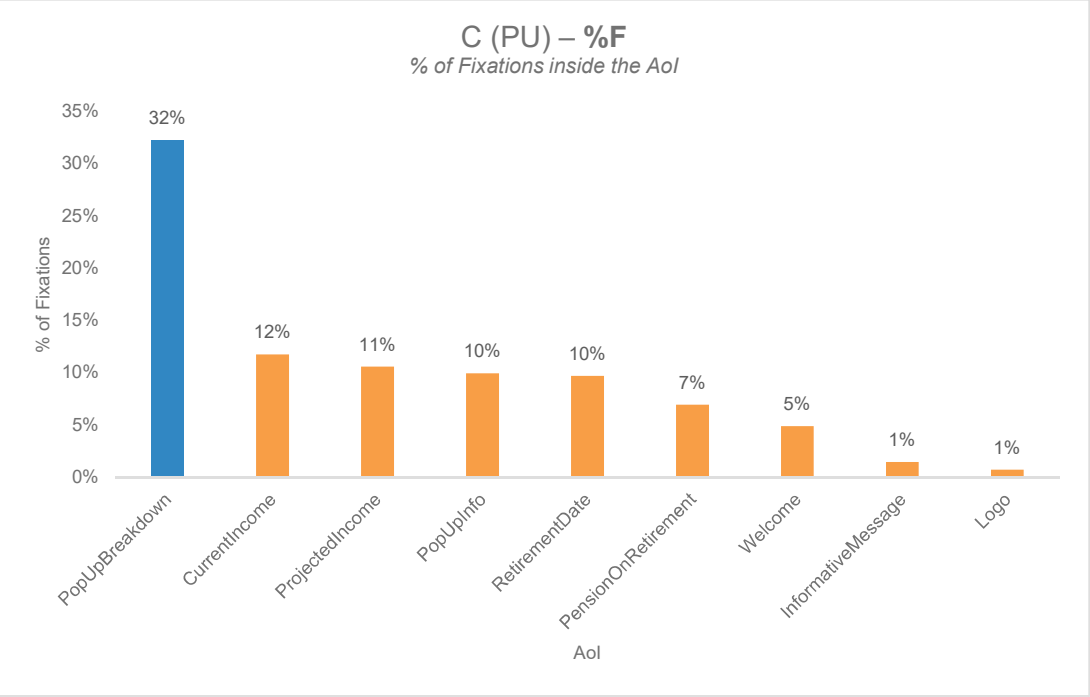

C (LP) – %F
% of Fixations inside the AoI
% of Fixations
0%
5%
10%
15%
20%
25%
21%
20%
17%
14%
7%
3%
2%
1%
ProjectedIncome
RetirementDate
CurrentIncome
PensionOnRetirement
PopUpInfo
InformativeMessage
Welcome
Logo
AoI

6.3.6 Pop-up Option C






C (PU) – TTFF
The average amount of time it takes to see an AOI
Seconds
4
3
2
1
0
0.82
1.68
1.74
1.79
1.88
1.91
2.74
2.74
3.63
PopUpBreakdown
RetirementDate
Welcome
CurrentIncome
PopUpInfo
ProjectedIncome
Logo
PensionOnRetirement
InformativeMessage
AoI


C (PU) – %F
% of Fixations inside the AoI
% of Fixations
35%
30%
25%
20%
15%
10%
5%
0%
32%
12%
11%
10%
10%
7%
5%
1%
1%
PopUpBreakdown
CurrentIncome
ProjectedIncome
PopUpInfo
RetirementDate
PensionOnRetirement
Welcome
InformativeMessage
Logo
AoI

6.4 Annex IV – Experiment Questionnaire

EXPERIMENT QUESTIONNAIRE

Mindset

Your government wants to support citizens in saving for their retirement. One way to help people is to make sure they have full and up to date information about their future retirement income from their different pension products.

The plan is to introduce a website that provides a personalised, easy to understand information on pension entitlements. The designers have produced several formats of the home page of the website, that we will show you and ask what you think about them. Imagine the information you see on the screen is about you, even if the figures used are just illustrative examples.

You will see different options, and each one of them, is composed about a Home Page and a Pop Up (with additional information). The home page contains the summary key information. The website contains more pages with more detailed and additional information, but today you can only see the Home Page. When you will see the Home Page, you can press the space bar for pass and get more information (PopUp page).

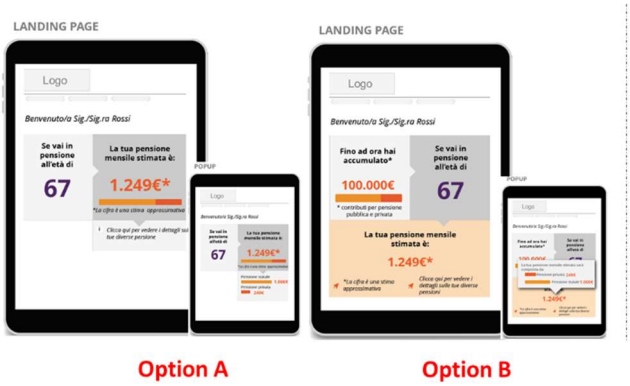
Questions related to the main tasks

1. The estimated monthly pension income is [multiple answers]:
    - The exact amount I will actually get at retirement
    - An estimate of what I can get at retirement, which might change depending on inflation, the return of investments and other factors [correct]
    - An estimate that will depend on my last salary before I retire
    - An estimate that considers that you will continue contributing until you retire [correct]
    - An estimate that is valid regardless of whether I continue contributing in the coming years

2. How useful did you find the following information included in this website? (1 = not useful at all; 4 = very useful)
    - Estimated monthly pension income at the age of retirement
    - This is how much you have saved until now (Accrued capital)
    - Breakdown of savings by pension source (i.e., private and public pension)
    - Estimated monthly pension income if you stop saving now

3. Which option would you chose as the best one for the website Home page? [show an image next to each of them – they can click on them]

Style A



- Option A
- Option B
- Option C

4. Imagine you found out that your estimated monthly pension income at retirement is limited, barely sufficient, or even unsatisfactory. What possible steps would you consider taking in this regard? (Multiple choice):

    - Consider saving more, for example buying shares or spending less
    - Save more into a pension product
    - Consider working longer (postpone retirement age)
    - Ask for professional help (financial adviser, pension provider, etc.)
    - Other: please describe
    - None of the above

Financial Literacy Assessment

1. Suppose you have some money. Is it safer to put your money into one business or investment, or to put your money into multiple businesses or investments?

- ❑ One business or investment
- ❑ Multiple businesses or investments
- ❑ I don't know

2. Suppose over the next 10 years the prices of things you buy double. If your income also doubles, will you be able to buy less than you can buy today, the same as you can buy today, or more than you can buy today?

- ❑ Less
- ❑ The same
- ❑ More
- ❑ I don't know

3. Suppose you need to borrow 100 Euro. Which is the lower amount to pay back: 105 Euro or 100 Euros plus 3%?

- ❑ 105 Euro
- ❑ 100 Euro + 3%
- ❑ I don't know

4. Suppose you put money in the bank for 2 years and the bank agrees to add 15% per year to your account. Will the bank add more money to your account the second year than it did the first year, or will it add the same amount of money both years?

- ❑ More money
- ❑ The same amount
- ❑ I don't know

5. Suppose you had 100 Euro in a savings account and the bank adds 10% per year to the account. How much money would you have in the account after 5 years if you did not remove any money from the account?

- ❑ More than 150 Euro
- ❑ Exactly 150 Euro
- ❑ Less than 150 Euro
- ❑ I don't know

[Based on the results, we categorise respondents in three groups with low (0-2 correct answers); medium (3 correct), and high (4-5 correct) financial literacy. Source: https://gflec.org/wp-content/uploads/2015/11/3313-Finlit_Report_FINAL-5.11.16.pdf?x47626

Socio-economic questions

1) How old are you?

__ years old

2) What is the highest level of education you have completed?

   a) Primary school or less
   b) High school
   c) Some years of university (not completed)
   d) University degree completed
   e) Post-graduate (master, PhD, other)

3) What is your marital status?

   a) Single (never married)
   b) Married or in civil union
   c) Divorced or Widowed

4) What is your household (yearly) income?
   a) 9.999 Euro or below
   b) 10.000 Euro – 29.999 Euro
   c) 30.000 Euro – 49.999 Euro
   d) 50.000 Euro – 149.999 Euro
   e) 150.000 Euro or above

What is your current occupation?

- ❑ Unskilled manual worker (blue collar)
- ❑ Trained/technical manual worker (blue collar)
- ❑ Self-employed (white collar)
- ❑ Administrative employee (white collar)
- ❑ Middle-manager (white collar)
- ❑ Owner/executive (white collar)
- ❑ Unemployed (non-working)
- ❑ Retired/Long-term sick leave (non-working)
- ❑ Home-maker (non-working)

Just for statistical classification purposes, which of the following ranges corresponds to your household's gross annual income? (READ ITEMS. SINGLE ANSWER)

- ❑ 0-20,000 Euro
- ❑ 20,001-40,000 Euro
- ❑ 40,001-60,000 Euro
- ❑ 60,001-100,000 Euro
- ❑ Above 100,000 Euro

Do you have an integrative pension?

Yes

(If yes) How many integrative pensions do you have?

No

(If not) Are you interested in the future to add an integrative pension?

Yes

Nor (screenout)