BSc Web Design

Final Year Project Report

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Accessible front-end framework prototype

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ABSTRACT

Senior citizens in the UK are facing more and more digital exclusion as technologies and software advance at an unprecedented rate. Numerous studies have been conducted into the causes of the problems, and additional research detailed in this report has explored how big the demographic and target market is for a product that could be aimed towards going to bridge the digital inclusion gap. The events of the last 15-18 months lead towards this issue worsening as a result of the COVID-19 pandemic; this is a subject that will be explored further on in this report. This project aims to outline how a front end framework could be packaged and distributed to companies who are targeting senior citizens online. The product will be developed from the viewpoint both customers who are going through these processes online, and the developers who are designing the websites.

Through both primary and secondary research two high fidelity prototypes were created demonstrating real world examples of how this product could be used from both a client and user side. These were distributed to potential users who tested and fed back on their experiences, feelings and suggestions of how they would improve the product if it was move forwards and taken to market.

1. Introduction

The product outlined in this report is a front end web framework catered exclusively towards users aged 55 and over to make their time online a more efficient and enjoyable experience. This framework could be sold to companies who provides online services aimed at this age demographic for them to ensure they're maximising their potential income over the Internet. The design and development of the product will be guided by universally recognised guidelines created by organisations such as the World Wide Web Consortium (W3C) or dedicated studies looking at the challenges that senior users encounter online.

In order to demonstrate how such a product could be used in a real world situation, two separate prototypes will be created using Adobe XD. One will demonstrate how the front end would look to senior users browsing the web, whilst the other will be be an example of how the web developers on the backend could use the framework to create accessible online forms. The industry chosen as a vehicle to show how this would look is Equity Release. This was chosen for a multitude of reasons - it is a service only legally available to over 55s, there is a wide scope for both design possibilities through each stage of the process, as well areas to cover in academic research on the subject and the author's father is in the equity release business with over 20 years experience as a director of an industry leading firm. Having this kind of knowledge available means that more of the time can be spend focussing on the UX design aspects of the project rather than trying to become an expert in equity release and financial services, as these subject areas are not what the project is ultimately looking to explore.

The demand for a product such as this is likely be at an all time high in a post COVID-19 society. Elderly people are more wary than ever when leaving the house unnecessarily therefore may be more engaging with online processes than they will have been pre COVID, especially as their exposure to Zoom, Amazon and other similar online services would have been increased during the pandemic. As digital inclusion amongst senior citizens increases, this may be the perfect time to explore the need for a product such as this in society.

2. Problem Statements

2.1. Client

The client for this product will be business aiming to have an online presence that is catered to elderly users. The example used in this report specifically would be a financial services provider looking to move their business online as a result of the COVID-19 pandemic. This project is aiming to increase these businesses online conversion rates by making senior users feel more comfortable and secure online.

2.2. Users

There are two user groups of this product - web developers who will be using the framework to build the processes for the business, and the customers using the services provided by these businesses. These two groups will have vastly different user journeys as they will be using the product from opposite sides. The web developers will require the back end system to allow for easy and quick changes to be made to existing processes and to be able to integrate back end systems to record the users data. This would go towards solving the problem of needing to employ developers who are already fluent in front end programming languages such as HTML, CSS and JavaScript. The client side of the project will be looking to solve the issue of the lack of digital inclusion for the United Kingdom's senior population. Research will need to be conducted to understand the causes of this problem, and multiple avenues must be explored in relation to possible solutions.

3. Research.

In order to mould a solution to these problem statements, a broad range of subjects need to be researched. It will be necessary to gain an understanding of the industry in which the project being based around, and also give context into the UX design world in order to guide how the potential solution could look.

3.1. UX Design

User Experience design is different from other types of design, such as graphic design or user interface design, as it is focused on providing users with a meaningful and functional experience when using the product in question. UX Design often incorporates research and data to work towards a final product as opposed to design for purely aesthetically pleasing goals.

3.1.1. Standards and guidelines

W3C is a community led by Tim Berners Lee and Jeffrey Jaffe that works to develop standards then ensure the World Wide Web reaches its full potential. They produce Web Content Accessibility Guidelines (WGAC) that explain how developers can make web content more accessible, and many of these guidelines can be applied to the project to ensure senior users get the most out of the web. The current set of guidelines provided by W3C are WGAC 2.1, which were published in 2018. WCAG 2.2 are scheduled to be published in 2021 (W3C 2020). W3C also state who the guidelines are primarily intended for; "Web content developers (page authors, site designers, etc.), Web authoring tool developers, Web accessibility evaluation tool developers and Others who want or need a standard for web accessibility, including for mobile accessibility".

WGAC 2.0 can be organised under four design principles; perceivable, operable, understandable and robust (W3C 2018). In their report (W3C 2018) they organise the latest guidelines under these categories ti provide guidance for any developers who are producing content aimed at senior web users. This report would be an essential tool to be used as a reference point for this project in its development stages.

3.1.2. How to design websites for elderly users

A usability test conducted in the United States, Canada, Australia, Germany, and Japan over a period spanning almost 2 decades found that the success rate for senior web users (aged 65+) to complete online tasks was 55.3% compared to 74.5% for users aged between 21-55 (Nielsen Norman Group 2019). The senior group were found to show behaviours indicating the were hesitant to try new things or alternate options to complete the tasks at hand if they initially failed - this ultimately could end up with older users abandoning tasks altogether. The younger users were twice as likely to use alternate options such as site search or live chat in order to achieve the task at hand. This study shows a clear gap in the ability of senior users to complete online tasks compared to younger users - this gap can be closed by considering the differing needs of seniors when designing online user interfaces.

Moth (2013) gave an insight into the findings of the Nielsen Norman Group report and condensed the findings into key design tips to help bridge the aforementioned gap in usability;

- Hyperlinks should use large text so as to ensure they are clear, and the destination is obvious. Correct size and spacing (white space etc.) ensures the user is navigating through links accurately will increase the speed at which they browse the site.

- 12 point font should be used as a default, with the option for the user to increase this if they deem necessary. This will aid the elderly as vision is widely known to diminish with age.

- Keep any forms / data entry as simple as possible. Use of brackets and hyphens can confuse elderly users. This tip is particularly relevant to the product in question for this report as users will be inputting a wide variety of information in order to complete the process. If they encounter issues at this stage it is highly likely they will abandon the task all together.

- Error messages should be clear that a) it is an error message and b) what the error is and how to resolve it. Simplicity is key to ensure the user is not panicked by a minor issue.

- Drastic design changes can cause major issues for seniors. 50% of seniors studied said they keep a list of steps needed to navigate webpages they frequently visit - any significant changes will causes issues for the senior user when they revert back to this in the future.

Further to the study conducted by Nielsen Norman Group, Campbell (2015) wrote a blog for Smashing Magazine (a website and ebook publisher providing content and resources for web developers and designers) detailing different ways older people use digital technology. In this blog he highlighted that older people in general have an above average attention span - this allows for long form content that might usually one discouraged when designing for younger generations. This will be needed in the financial services sector to ensure the users are aware of the implications of what they are agreeing too. The blog also highlighted how older people feel more comfortable with options they have any kind of prior experience with. Being able to highlight any previous choices in the process will help them feel at ease. They also value the opinion of experts more highly than other generations - there is a degree of trust. Ensuring there is trust in the product is essential when designing for the financial services industry as there is potential for considerable amounts of wealth to be exchanged.

3.2. Equity Release

3.2.1 Demographic Analysis

An annual 'Market Monitor' report is product by Key Retirement Solutions, a market leading equity release provider in the UK.The report covers the entire equity release market and gives a non biased view on and significant changes/trends that have occurred in the past financial year. This years report (KR Group, 2021) revealed that 49% of customers are aged between 65-74. This is due to the advice procedures that all potential enquiries have to go through, and more suitable alternatives can be found for the majority of those who show an initial interest - only 15% of enquiries actually complete an equity release plan. The average amount of money released for the 2020 financial year was £84,919. This is up 9% on 2019, even though the total number of plans completed was down on the previous year.

The report also highlights what kind of plans are taken out by customers in the past financial 12 months. In 2020, 70% of equity release plans are Drawdown plans. These are most favourable as they all the customer to pull out an initial amount, whilst keeping the rest of the overall amount stored in a reserve facility ready for the customer to 'draw down' as and when they require it. Lifetime Mortgage's made up the rest of the equity release plans completed during the past year. Lifetime Mortgages are a loan borrowed against the customers home that can be paid in one lump sum, or via monthly instalments.

3.2.2 What is Equity Release?

Equity release refers to a range of products letting you access the equity (cash) tied up in your home if you are over the age of 55. You can take the money you release as a lump

sum or, in several smaller amounts or as a combination of both. (Money Advice Service, 2021)

Equity can be released in two ways; a Lifetime Mortgage and Home reversion. A Lifetime mortgage is a mortgage taken out on the customers property, usually up to 60% of the total value. The customer can choose to make repayments on it themselves or leave until they die or move into long term care - however this will cause the interest on the loan in increase. Customers usually don't make repayments whilst they're alive, but will pay back whatever fee they loaned plus interest upon death (and therefor sale of the home). Lifetime mortgages are covered by the Equity Release Council's 'no negative equity guarantee'. This ensures that once all provider fees are covered from the property being sold the customer and their estate will not be required to pay any more fees if the properties value cannot fully cover it. In most cases the customer can also choose whether to take the payment in a lump sum or smaller amounts upon their request. The benefits of taking small amounts at a time is that interest is only paid on the amounts that have been withdrawn.

 A Home reversion is similar in terms of the conditions of repayment (death or long term care) however it is not similar in regards to how the funds are generated. Home reversions require the customer to sell a percentage of their home at the market price (this is usually a to lower than what is actually obtainable by testing the open market) to the equity release provider for a lump sum or regular payments, whichever suits them best. Most providers will require customers to be over 60 for a Home reversion plan, whereas Lifetime mortgages are readily available for over 55s. Home reversions also require that the customer keeps the property at a respectable level and the provider is not liable for any maintenance costs to uphold these standards.

Equity release can seem like a simple and easy solution to gain extra funding for over 55s however there can be downsides to these plans that the customers must one aware of before taking a plan out. The arrangement process is very in-depth and providers ensure that a wide range of alternatives are considered before anything is finalised. Taking out an equity release plan can affect the customers options should their situation change after the plan is taken out - for example if they want to downsize after taking a plan out the new house may not have enough equity to cover the plan, therefore the customer wouldn't be able to complete the move.

All customers are advised to receive advice from a qualified financial adviser before committing to any plans, and there are rules and standards laid out by the Equity Release Council that go beyond regular requirements and are specific to equity release to ensure all customers are dealt with fairly and transparently.

3.3. Existing web content relating to equity release

This section will focus on the top google search results when searching "equity release", with a focus on two major areas; what actual content is offered, and the UI of these pages. The purpose of this research is to assess both positive and negative design features to see if there is anything that may be lifted and adapted for use in the final product. This analysis will focus on pages containing online calculators/form as this is most similar to the product this report is focussed on.

3.3.1. Aviva

Aviva make use of a bright yellow and blue colour way consistent with their wider branding to highlight the sections of the page used for navigation. Large blue icons are sat on yellow

backgrounds to ensure the function is clear. Each icon is also captioned so the viewer knows exactly what they do.

Sections of the page that contain longer forms of text use lighter shades of colour so as not to overwhelm the reader. Large headings and aiding images give a good idea of the contents of each section without having to trawl through excess information - studies have shown that senior users have a tendency to give up online processes quicker if they can't find what they are looking for so it essential they can find what they're looking for quickly. The table of benefits and risks also utilises a clear hierarchy of text for this reason.

The page features an 'Equity release calculator'. This gives the user a brief idea of how much they could release from their property from a simple online form. The form uses dropdown options for the user to pick from, rather than having a free text input. This will give confidence in their selection as the option are being provided to them to prevent any ambiguity within the answers.

3.3.2. KIS equity release calculator

The outdated aesthetics are immediately noticeable upon landing on this page. There is not a really clear hierarchy of text and it is not clear where to start going through the content. The guidance on how to use the equity release calculator are located nowhere near the calculator itself which largely defeats the point of having them on the page (although there are pop up instructions on the calculator if required). The navigation menu for specific equity release content is sat below the calculator - this means it is not immediately clear of where the users option are if they wish to explore the content further.

The equity release calculator itself is designed very well from a functional point of view. Each input field has guidance text available incase the user is unsure of anything. The calculator gives instant results for a variety of potential plans the user could take out, along with clear next steps of how each plan would work.

3.3.3. Key Equity Release calculator

Key utilise extremely high contrast text to make sure each sentence is clearly eligible, no matter the size. There is not an overload of information on the page, however the content that is there has a clear hierarchy of text to distinguish headings and body text and simple graphics and use of colour guide the user through the page.

The calculator itself has large input fields with help text to inform the user of what to enter. The buttons are clear and use colour to inform the user of their function. There is help text below the 'Calculate that informs the user how the process behind the calculations. This gives the user peace of mind that the the valuation they receive legitimate total if they wished to pursue the process.

 Key have an entire section of the page dedicated to ensuring the user is in safe hands. They repeatedly reference a five star trust pilot review and state that the plans meet the standards set by the Equity Release Council. There is also a clear list of the users rights and freedoms they are permitted once a plan is taken out.

3.4 Primary research findings

In the survey conducted (Fig. 22 in the appendices) over 96% of the 119 submissions were from users aged between 55-74 - this aligns with the most common ages of equity release customers outlined in the Key Retirement Solutions 'Market Monitor' report. Just over 50% of users said they mainly used a mobile phone to undertake online services - this is 10% lower than the national

statistics for most common devices used (Statista, 2020). This must be taken into consideration when designing the project as older users are more likely to be access the Internet via Laptops, PC's or tablets. Over 91% of the users have stated that they would feel more comfortable undertaking online services more often as a result of the COVID-19 pandemic. This shows that there is going to be a clear desire for the elderly population to at least have the option to conduct services online that they may not have before - therefore there is an obligation to ensure the online world is more welcoming for these users as they migrate further and further into it.

Nearly 35% of the users surveyed were found to struggle at times completing online processes such as setting up new accounts, booking tickets and filling out online forms. Some of the trigger points can be quoted as; "Not getting it right initially so tend to panic and get flustered because i thought i had followed all the right guidance", "The layout of the website", "Too complicated, having to look everywhere on the screen for directions", "Timing out" and "Normally the style of language". These replies all align with the findings of the Norman Nielsen Group study - therefore there is a clear indication of the benefits a product such as this could have on senior web users. 68.1% of submissions stated they benefitted from receiving progressive feedback whilst filling out complex online processes. This information, along with the findings from Campbell's (2015) blog point towards having to incorporate user feedback into this project almost as a necessity.

At the end of the survey users were given a free text box and encouraged to suggest what they would improve to make their overall experience online more enjoyable. The most common suggestions for improvement related to formatting (responsiveness, font size), use of non-technical language and providing clear guidance for filling out forms.

3.5 UK senior population

3.5.1 Demographic analysis

In 2016 there were 11.8 million UK residents aged over 65, this is 18% of the total population. This is estimate to increase to 20.4 million (26%) by 2066. Life expectancy is expected to jump from 79 years to 86 years for males, and 83 years to 89 years for females in the same time frame (ONS, 2018). All of these figures point towards the UK's population ageing in the near future - it is projected in 50 years time that there is likely to be an additional 8.6 million [people aged 65 and over in the UK. This is roughly the population of the city of London. This influx of over 65s is expected to be populated in rural and coastal areas of the country, rather than urban areas - this also coincides with the areas of the UK with the highest concentration of equity release plans (Key Group, 2021).

Employment rates for over 65s have recently stabilised around 10%. The most common reasons given for continued work into old age were paying foe essential bills and not feeling ready to stop work (ONS, 2018). This points towards a growing feeling of seniors seeing themselves as more youthful than previous generations, which may position them to be more inclined to partake in online services in the future.

As more services move online, so have digital literacy rates for senior citizens. The number of over 75s who reported using the internet in the last 3 months doubled from 20% to 41% between 2011-2017 (ONS, 2018). These figures are expected to keep rising, pointing towards the need for a product such as the one discussed in this report to cater for this rapid influx of senior users.

3.5.2 Digital inclusion of senior citizens in the UK

In a digital inclusion evidence review conducted by Age UK in 2013 they identified that a "tipping point" had possibly been reached in relation to the number of over 65s using the internet compared to those who hadn't (Age UK, 2013). The most recent figures from the Office of National Statistics show that 47% of adults aged over 75 were not recent internet users (ONS, 2019). It is almost certain to now presume that the majority of seniors are now actively using the internet, especially after the COVID-19 pandemic prevented many in person services from being able to be carried out.

In the review it was found that 92% of over 55s can use emails and social networks confidently, but these numbers drop to between 65%-80% for other online activities such as finding holiday information, searching local government services and sharing pictures online. These figures also back up the evidence in the review that increasing the digital inclusion of the senior population can help alleviate loneliness and social isolation. The review cites Lelkes' journal entry that "the positive effects of internet access and internet use (including its likely impact on reducing social isolation) outweigh its potential negative effects (internet overuse, attention deficit, deterioration of cognitive skills). (2013).

In a blog written for the Centre for Ageing Better, Williams (2018) talks about her experiences using the internet in later life. She identifies that the biggest hurdle for senior users to be technical jargon and likens it to trying to learn a new language at the age of 80. She queries whether web developers really understand the issues and barriers they have created when designing websites without older users in mind. She describes how many older users find the online world to be daunting and many users find it embarrassing to have to constantly asking for help - "My 8-year-old great nephews seem to be born with it. They live in a foreign land for which I have no map, comprehending a different language which only they can speak." She ends the blog post by imploring developers to understand the fears older users have, and outlines how to over come them; use plain English and drop technical jargon, teach older users through positive reinforcement and to ensure the senior demographic is consulted for testing on products that they are likely to use. Williams blog post encapsulates the feelings of senior users who are desperate to get online but struggle to learn the ropes - it must be a vital point of reference when designing the product outlined in this report.

3.5.3 Effects of COVID-19 on digital inclusion of seniors

Tabassum (2020) highlights that 8% of the UK population scored 0/5 when tasked with completing five digital tasks in the 2018 UK Consumer Digital Index. These tasks ranged from installing apps to verifying online information sources - but 76% of those who scored 0 were aged over 65. She goes on to highlight how the lack of these skills that may appear basic to most users will have made the transition to moving online for every day life extremely difficult for those who aren't very tech savvy. She expands on how there needs to be more support for the older generation to deal with digital technology as a result of the pandemic. She goes on to highlight the 'Just Checking' digital solution that was awarded a £25,000 grant as a result of the TechForce19 challenge by the NHSX (the department responsible for digitising the NHS), Department of Health and Social Care and the Ministry for Housing Communities and Local Government. The £25,000 grants are awarded to digital solutions that help those who were left vulnerable by the pandemic. Just Checking supply activity monitoring systems that help local government social care workers provide assessments of older people in their homes. She states that although this is a worthwhile initiative, more effort and attention needs to be put towards solutions that empower senior web users in their online exertions rather than just seeing them as "passive recipients of technology".

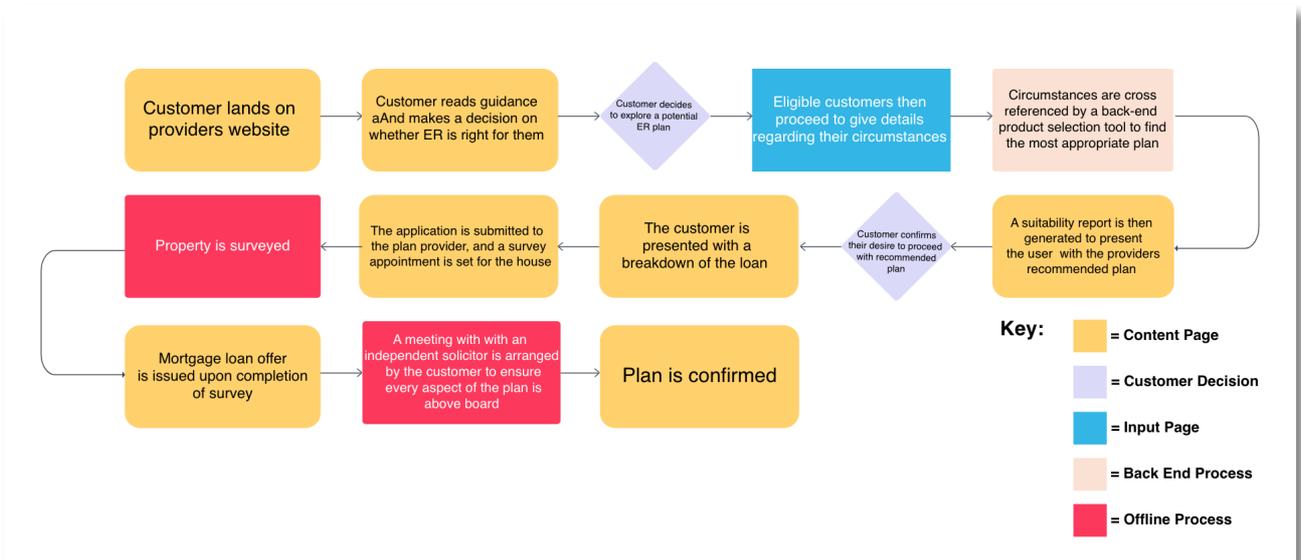# 4. Early Product Development

4.1 Initial Development Phase

FIG. 1 USER FLOW DIAGRAM

The user flow diagram above shows each different step a user goes through in the Equity Release process from the entry point to completing the plan. By breaking this down before beginning the development the designer can evaluate the user experience as a whole, and then focus on streamlining the process to increase efficiency and conversion rates.

FIG. 2 MOSCOW METHODOLOGY DIAGRAM

4.2 Wireframes

Wireframing is a useful tool at this stage of the development process to get an initial idea of how the project would look on a web page. These wireframes were made using an Adobe XD plug-in called Auto Flow. This plug in provides pre made UI elements that the designer can then choose the elements they desire and configure them on each art board to create basic outlines of how the final product will look.
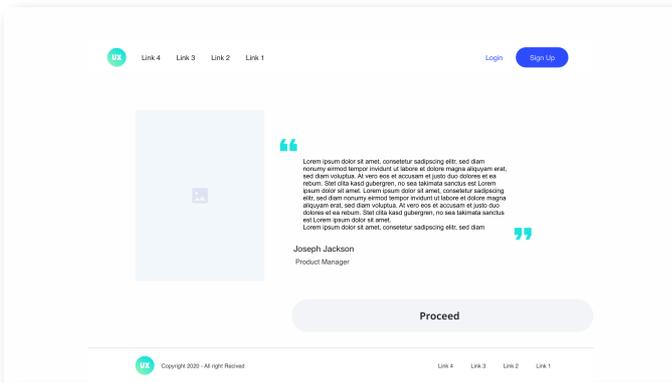
FIG. 3 LANDING PAGE WIREFRAME

This wireframe was laid out in a way that would make it clear to senior users what the content was, and how to progress on to the next steps in the online process.

A two column grid was used for simplicity, with the left column featuring a descriptive image and the right column with informative text.
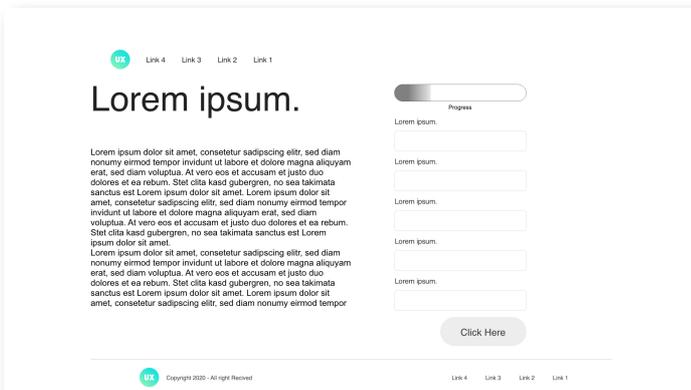
FIG. 4 FORM INPUT PAGE WIREFRAME

Ensuring the form input page is accessible is essential to the users being able to interact with the application. A large title is used to ensure the user is aware of the context around the questions they are answering, whilst the progress bar, input fields and proceed buttons are all aligned in one column on the right hand side to clearly split the page into two separate sections.
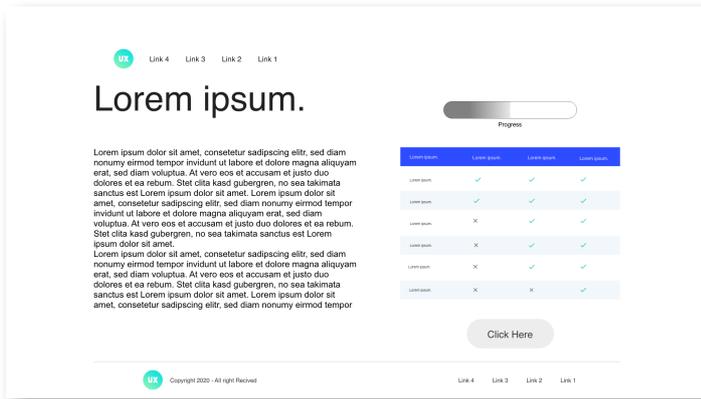
FIG. 5 SUITABILITY REPORT WIREFRAME

The suitability report page is laid out identically to the form input page to establish consistency throughout the entire process from start to finish. This aids in giving the users confidence that the process is secure - this is essential for designing webpages in which the users are disclosing financial details.

5. Product Design

5.1 Initial design stages

Once the wireframes had been drawn up, accessible colours and fonts needed to be identified. The 'Adobe Color' online tool was used to create the swatch seen below. This specific tool was used to ensure the colours aligned with Adobe XD as this was the software being used for the final build. A deep navy colour (#262052) was chosen as the base colour for the project as it is associated universally with trust and authenticity - this increase the senior users willingness to engage with an online financial services product. Two shades of grey were then identified (#E6E6E6 & #A0A0A0) to give a high contrast against the navy base colour. This an essential requirement in terms of accessibility, so it was of paramount importance to select contrasting secondary colours.

After researching accessible fonts, the Radikal font family was chosen to be used for the process. This font family has a wide range of weights which allows for a variety of uses. This font family brings a sleek and professional look which will aid a financial services product by maintaining a level of trust and authenticity with the user.
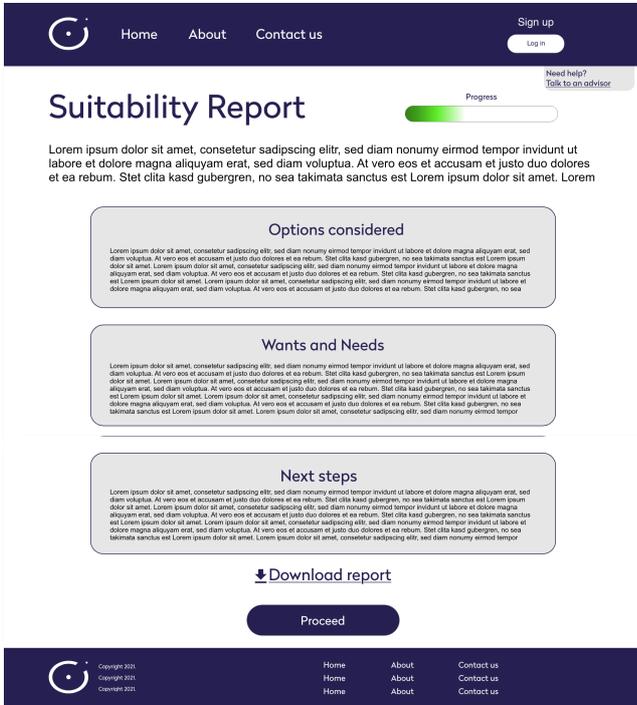
| #262052 | #E6E6E6 | #A0A0A0 | #FFFFFF | #000000 |

Radikal
Radikal Thin
Radikal Light Italic

Radikal Ultra Thin Italic
Radikal Medium
Radikal Bold

FIG. 6 FONT AND COLOUR SWATCH

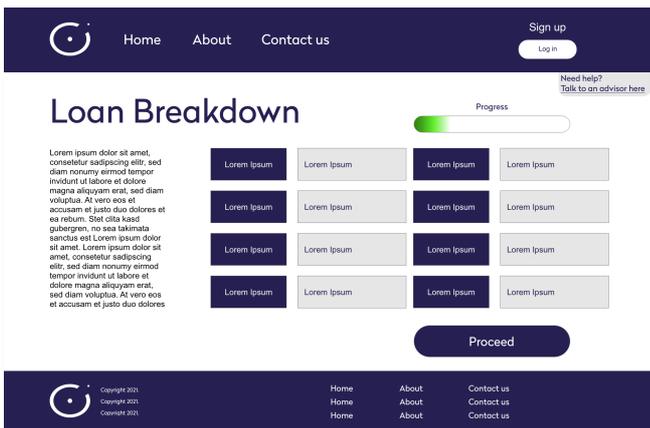**FIG. 7 SUITABILITY REPORT LAYOUT CONFIGURATION**

After deliberating with the layout originally outlined in the wireframes it was found that an accordion style layout would be the best fit for the needs of the target users. This would allows each section of the report to be opened and closed at the users discretion, without requiring them to be jumping from page to page (this was found in the research to be highly confusing for senior web users).

Each individual section is set upon a light grey background, with a clear heading and brief summary of the content for the section and a 'Read More' button inviting the user to open the accordion to view the full content. Splitting it up this way allows the user to be clear and confident about exactly what they are reading, and sets clear boundaries between what information is relevant to each specific section of the report.

FIG. 8 LOAN BREAKDOWN LAYOUT CONFIGURATION

The loan breakdown page was a chance to experiment with how tables would be laid out within the framework. It was established that the table headings would be coloured navy, with the data fields coloured in a light grey. The use of these colours gave the table a clearly recognisable structure.
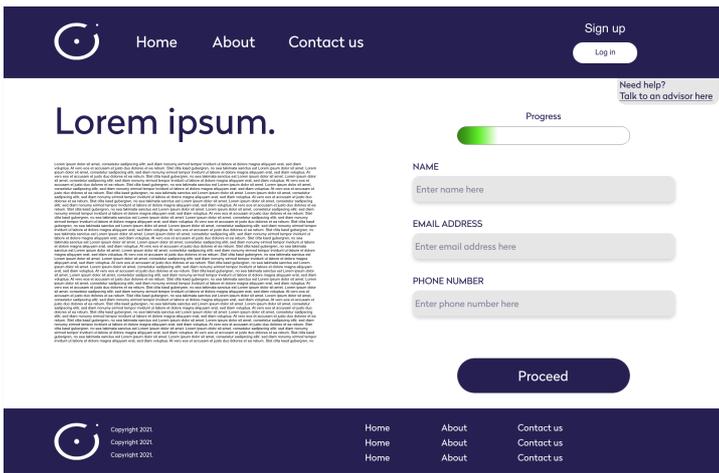
FIG. 9 FORM INPUT LAYOUT CONFIGURATION

The initial form input page was created in Adobe XD to follow the layout of this page from the wireframes. In this version of the landing page there is no scrolling capability, as the input fields are a 'scroll group'. This allows for the page itself to be static, however the input fields themselves can scroll within a set view port. This feature was initially believed to be useful for accessibility reasons, however in action it was immediately clear that the page would be more understandable if all the input fields were visible through scrolling.
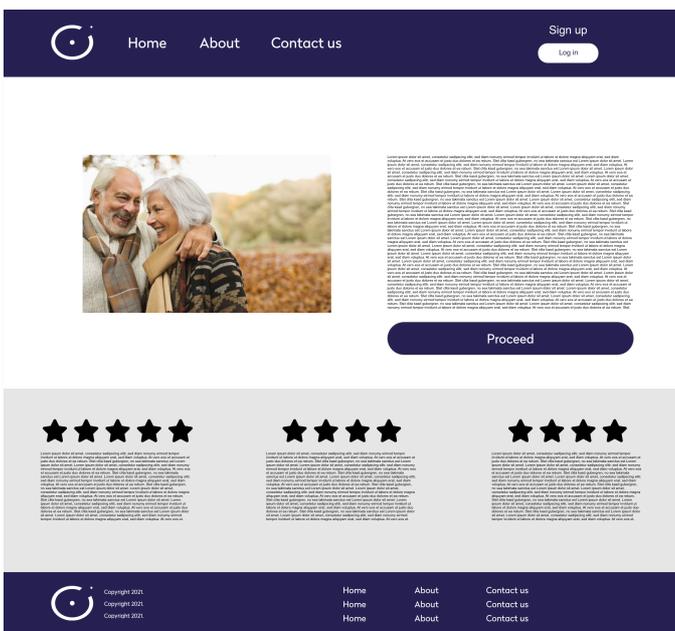

FIG. 10 LANDING PAGE LAYOUT CONFIGURATION

Once the colour and font was decided, these elements were combined with the original wireframes to get an idea of what the final product would look like. The deep navy previously mentioned as the base colour has been used for the header and footer, as well as the proceed button. These are the three sections that have interactive elements within them, so colouring these blue is an indicator to the user of where the can interact with the page.

If the user scrolls down from the main call-to-action box on the landing page they can see existing customer reviews. Having this on the landing page immediately re assures the user that they are dealing with a legitimate company.

5.2 Final Product

After a rough layout had been identified, example Equity Release content had to be fitted in. A key consideration moving forwards to this point in the design process was ensuring that all of the content could fit within [W3C accessibilty guidelines for older users](#) (World Wide Web Consortium, 2010). This meant that close consideration must be paid to design aspects such as font size, colour contrast and language used.
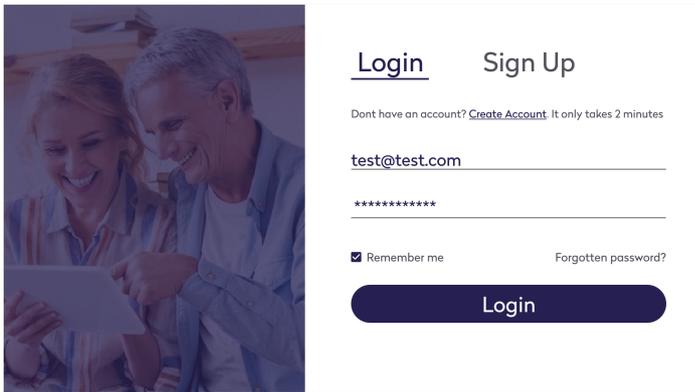

FIG. 11 LOGIN PAGE

The log in page is clean and free from unnecessary clutter. The hero image takes up just under half of the page, and it shows two senior citizens happy and smiling whilst viewing a tablet. This image has been used to paint a vision in the users head of a positive outcome from this process. The image has also been overlaid with the navy colour used as the primary colour for the branding, this causes an immediate connection between the brand and the feeling generated by the image.
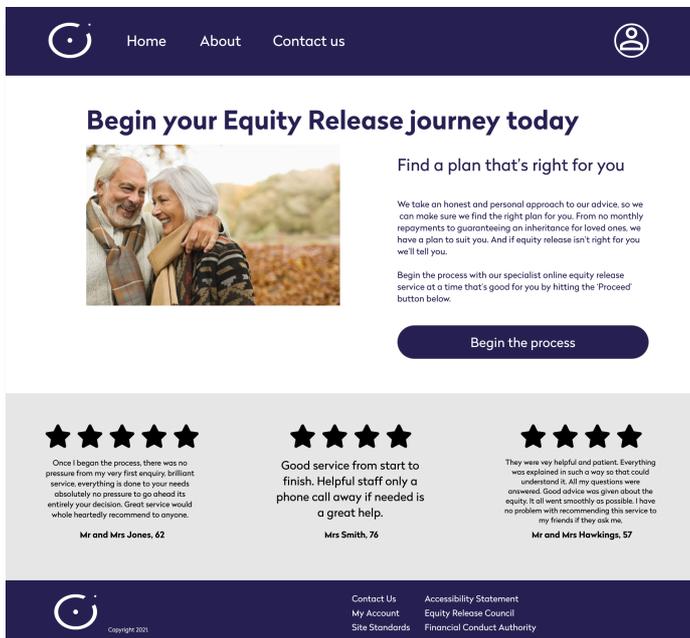

FIG. 12 LANDING PAGE

The call to action title on landing page immediately invites the user to advance further into the process by speaking directly to them, rather than just having a general statement in its place. Alongside this heading, there is another image used to relate to the viewer and try to establish a level of trust between the provider and the client.

There are also a variety of customer reviews below the call to action section, these are situated here to reinforce the level of trust for any users who may require it.
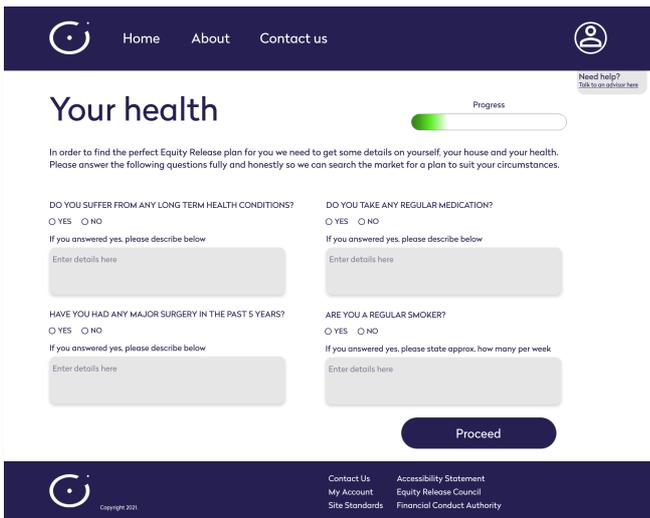
15

FIG. 13 FORM INPUT PAGE

The form input pages developed from the previous iterations with bigger text fields and the addition of check boxes. The check boxes were prototyped in Adobe XD using the components feature. Components are different from standard XD items in that they can't have multiple different 'states', depending on how the user interacts with them. These checkboxes had two states - 'checked' and 'unchecked' dependent on whether or not the user had clicked them. Using components allows for the design to be kept to one art board on XD, rather than having a different art board for each different state.

FIG. 14 USER DASHBOARD

The user dashboard is where the client can keep track of their plan once it has been confirmed. The user can log in and see how much money there is left for them to release if they have selected a drawdown scheme, keep track of where they have spent their money so far or release more money from their scheme, amongst other things. The dashboard is laid out in an orderly manner with each function clear to see at first glance.
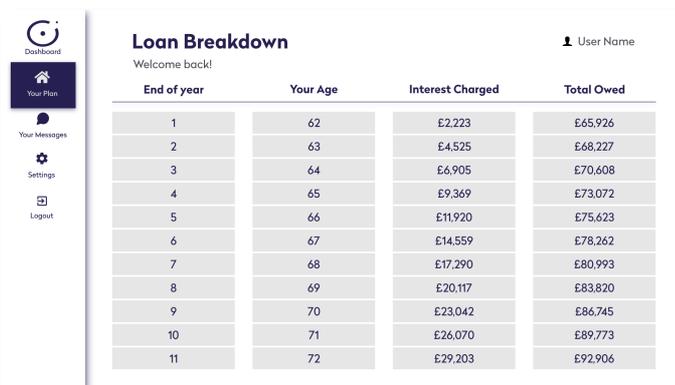

FIG. 15 LOAN BREAKDOWN

Although the user sees the breakdown before they confirm their plan, it is also available to view from the dashboard. The breakdown shows the amount of interest that is compounded year upon year, as well as the amount owed in total. Being able to set the table up as a designated 'scroll group' in XD meant that even though the first 11 years are shown in the Fig. 15 the user can see the full 25 year breakdown through scrolling, with the rest of the page remaining static.
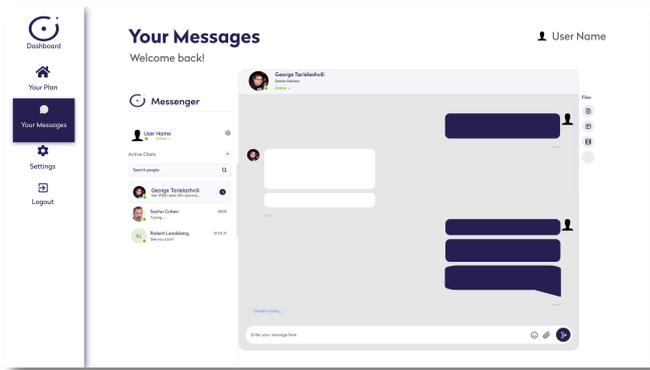
FIG. 16 ADVISOR MESSAGES

Being able to talk to an adviser at any time was a key feature in giving the user a secure feeling when using the app. The message feature is in its own separate tabs the user can easily keep tabs on their conversations, as many older users may not be as comfortable exchanging online messages as younger internet users.
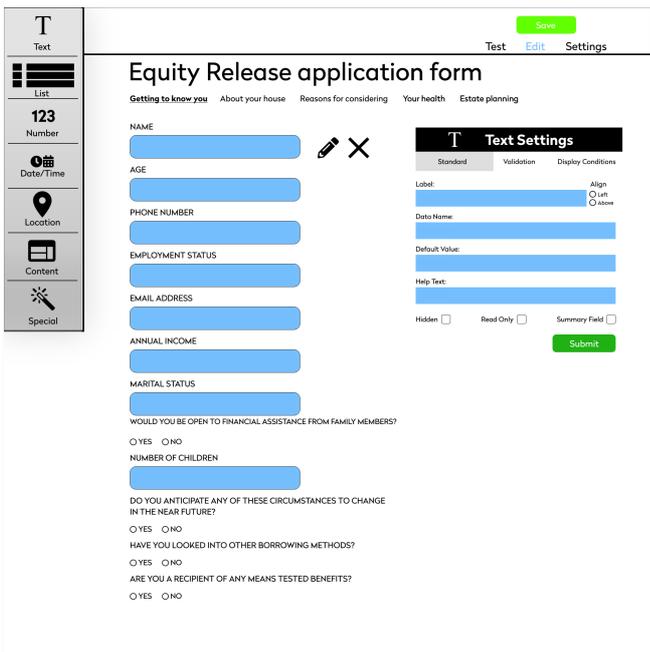

FIG. 17 FORM BUILDER UI

The form builder interface was kept as simple as possible in order to allow for the developers using the platform to easily be able to create a variety of different forms.

This art board shows the options to edit an existing text field, with the settings being split into 3 groups. The standard settings mainly relate to what the client sees on the front end, such as the label, alignment or help text.

The validation tab allows the developer to set certain parameters in which the input must fit within; for example phone number or email address.

Display conditions can be set to alter a fields visibility dependant on the users previous input.
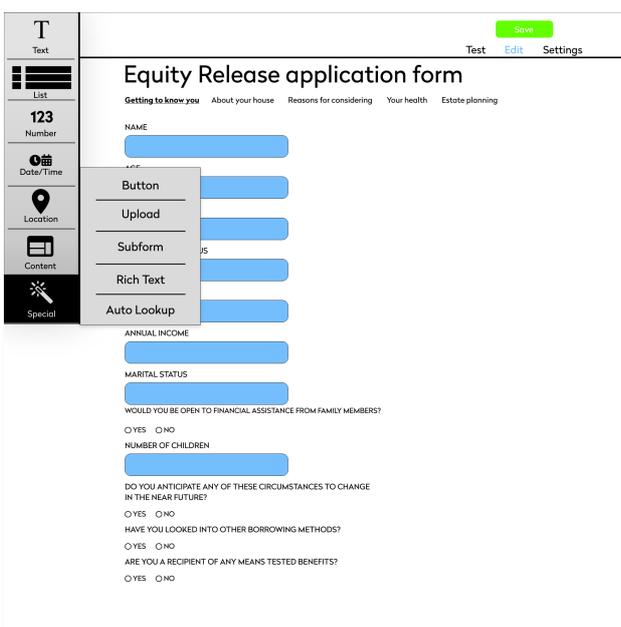

FIG. 18 FORM BUILDER UI

The sidebar menu displays the various field types available to the developer creating the form. The fields vary from standard text fields or lists, to the 'special' fields shown in Fig. 18

6. PLESI

"The Financial Conduct Authority is the conduct regulator for nearly 60,000 financial services firms and financial markets in the UK and the prudential supervisor for 49,000 firms, setting specific standards for 19,000 firms." (Financial Conduct Authority, 2016)

The Financial Conduct Authority (FCA) regulate the conduct of the financial services industry within the UK. As Equity Release falls within this industry, these businesses must abide by all FCA the rules and regulations to ensure they market is fair and competitive for all parties involved. The FCA is essentially in place to cover many of the legal, ethical and social issues that can arise form such businesses, and Equity Release is just one of many subsidiary industries that fall under their umbrella. More specific issues relating to Equity Release can be found below:

6.1 Political Issues

The Advertising Standards Authority (ASA) is the independent regulator for all British media outlets. They ensure that the 'Advertising Codes' they write are met accordingly. In July 2018 the ASA held an investigation into an advertisement by Age Partnership, one of the UK's largest Equity Release providers and 9 viewers challenged the ad as misleading due to the claim "we used some money to pay off our mortgage". The ASA ruled that these objections could not be upheld, due to there being clear distinction between a standard mortgage and a lifetime mortgage in the rest of the advert - however they did describe the wording and terminology to "give the wrong impression of what was involved. By focusing on the potential benefits without sufficiently communicating other elements, they concluded that the ad was ambiguous and likely to mislead." (ASA, 2018.)

Another political issue regarding Equity Release plans is their current tax-free status. Vickery (2021) describes how the lump sum received by the customer is exempt from both income tax and capital gains tax. Tax laws are often a huge political talking point, and if these laws were changed it could have a drastic effect on the industry.

6.2 Legal Issues

The Equity Release Council (2021.) (ERC) state that every company that displays their logo is required by law to offer the customer an independent solicitor before signing up to a plan. Any company that is part of the Council must also ensure the customer cannot owe more than the total sale price of their home, even if its value drops. The Equity Release Council also require all member companies to complete an 'Annual Certificate of Compliance', in which audits their practise to ensure they still meet all of the Councils Standards and Guidelines.

As well as the legalities of of the Equity Release industry, there is strict Government Data Protection rules that any business conducting itself online must adhere too. The Data Protection Act 2018 states that any data submitted by a person online is:

- used fairly, lawfully and transparently

- used for specified, explicit purposes

- used in a way that is adequate, relevant and limited to only what is necessary

- accurate and, where necessary, kept up to date

- kept for no longer than is necessary

- handled in a way that ensures appropriate security, including protection against unlawful or unauthorised processing, access, loss, destruction or damage

Other, more sensitive information that may relate to a persons race, ethnicity, political opinions etc. is subject to stronger legal protection so as to protect ones privacy. The 2018 Act gives citizens the right to find out what organisations have access to their personal data, such as; how their data is being used, have any of their data erased, updating incorrect data or stopping the processing of their personal data. They also have the right to know when an organisation is using their data for automated decision making, or profiling their behaviours and interests. GDPR will be of extreme relevance to the web developers who

6.3 Ethical Issues

One major ethical issue that Equity Release companies face is how they deal with vulnerable customers. With their target market being amongst the most vulnerable demographic of our population their is an increased focus on this area specifically - and the COVID-19 pandemic has only served to increase the United Kingdoms vulnerable population.

The FCA offer specific guidance in relation to "fair treatment for vulnerable customers" (Equity Release Council, 2019), and they define vulnerable consumers as "someone who, due to their personal circumstances, is especially susceptible to detriment, particularly when a firm is not acting with appropriate levels of care." (Wilson, 2020.) The FCA states that; Health, Life Events, Resilience and Capability are the four main drivers of vulnerability, and that is a wide scale issue in which almost half of the UK's adult population has shown one characteristic of vulnerability at one point in their lives. Wilson goes onto state that when surveyed nearly 88% of advisors said they could not easily spot a vulnerable customer - this leaves a lot to be desired. He goes onto detail how this issue has been worsened by the COVID-19 pandemic, as with many consultations having to take place over telephone or video call rather than face-to-face it is harder to know for definite if a customer is vulnerable or not. With 1.5 million people showing signs of vulnerability in a post COVID-19 world, who may have also been financially impacted by the pandemic, the number of vulnerable customers looking to Equity Release as an option is sure to increase in the near future.

In response to this, the ERC has doubled its members adviser checklist from 12 points to 24 points (Staines, 2020.). This was due to an FCA investigation uncovering failing in the ways that advisers were giving advice, including not being able to evidence that their advice was suitable and debt consolidation not being explored properly.

6.4 Social Issues

Being seen to be taking advantage of vulnerable customers does not go down well in the public eye, and as a result there can be bad press and 'horror stories' in relation to Equity Release. An article posted by Ben Wilkinson on the UK's 'Financial Website Of The Year' thisismoney.com, claims Equity Release advisers are failing customers. Articles with headlines such as this cast the industry in a negative eye within some sects of society, especially with how bad press can spread in the age of social media.

Another effect of the pandemic has been how the social interactions between customer and advisor have shifted completely. According to (Staines, 2020) 73% of firms have started using video conferencing apps such as Zoom, and 38% have moved towards online portals such as the user dashboard designed in this project. The CEO of more2life, one of the UK's largest Equity Release providers, is quoted as saying that adopting these new technologies has played a crucial role in adapting to life with COVID-19.

Another potential social issue that could have major implications on the Equity Release industry is the performance of the housing market, particularly if house prices and mortgage rates started to decline. This could lead to a lack of funds being available within potential customers homes,

resulting in a general lack of plans being taken out. This his not currently seen as an issue as house prices continue to rise, but its potential hazards to the industry are clear to see.

7. Evaluation and Conclusions

7.1 User Evaluation

To get an idea of how well the project had solved its problem statements, both prototypes were tested on prospective users. Two separate Google Forms were sent out, one to a group of 8 web developers and the other to 10 over 55s (potential target market for Equity Release).

7.1.1 Front End Framework evaluation

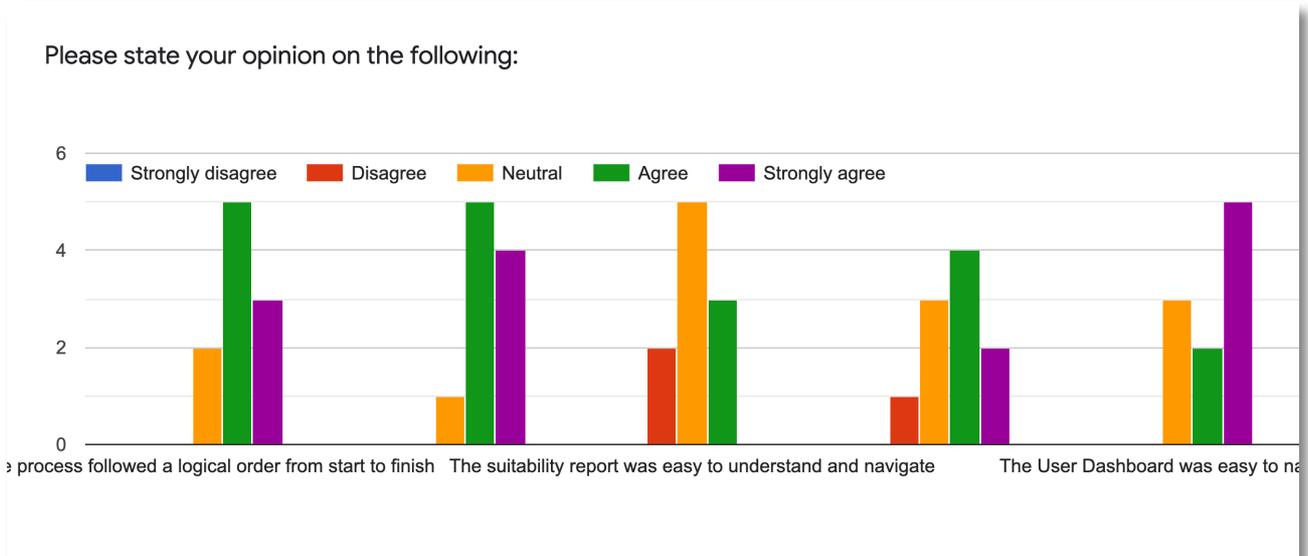Please state your opinion on the following:

FIG. 19 USER FEEDBACK

The assessment questionnaire of the front end framework was a 5 point Likert scale asking the users their opinion on a range of subjects. When quizzed on whether they thought the process had followed a logical order, 8/10 agreed or strongly agreed. This was contrasted by only 3/10 giving the same score when asked if they thought the suitability report was easy to understand and navigate. The User Dashboard received the best feedback with 5/10 strongly agreeing that it was easy to navigate.

The rest of the feedback came in qualitative data form through questions centred around users feelings and opinions after they had tested the prototype. When asked to describe how they felt whilst using the prototype words like "safe" and "secure" came up. One user commented they would thought it may have been easier to do the process over the phone.

7.1.2 Form Builder evaluation

To analyse the form builder, a 90 second demonstration video was shown the the users rather than them completing tasks on an actual website. When asked about the demonstrated usability of the video users commented that both tasks appeared logical, however they would have liked to have seen a more detailed demonstration with a higher number of tasks. Users commented that they would have liked to have seen text input and some simple edits being demonstrated in the video.

When asked about what kind of additional features they would like to have added to some of the menus displayed users would have liked to seen some capacity to alter font sizes and colours via some kind of custom css feature. When asked about additional field types they would have liked the option to have available users expressed their desire to see the ability to embed videos and images, as well as having payment or CAPTCHA systems readily available.

7.2 Reflective Commentary

I have found this project extremely challenging, yet ultimately very rewarding and have felt myself grow within both academic knowledge and personal skills. My understanding of how to use the Adobe XD prototyping tool have increased exponentially as I have built up my time using the software. One key example of this was prototyping the 'Suitability Report' element of the front end framework. I initially prototyped this report as 10 separate art boards as can be seen in Fig. 20 in the appendices. This provided multiple continuity issues when it came to prototyping as the report wouldn't line up between art boards. After researching different techniques I converted the report into a 'component' situated on one single art board, with each report section being displayed in each component 'state', as seen in Fig. 21 in the appendices. This gave the report a smoother, more realistic feeling once prototyped, and was a clear sign of my XD skills improving.

When reflecting back on the project I would have like to been able to improve the form builder prototype as this is also a large part of the initial project aims. Although I believe I was able to provide a functional and logical demonstration of how the form editing process would look, there was definitely potential for me to showcase how different aspects of the system could look like such as a test/development platform, showing how the back end integrations could be linked or demonstrating how submissions message could look and styled individually. I feel that if I had managed my time better between each aspect of the project that I could have showcased my original vision for the form builder to a higher level, however this may be a point I come back to when considering future work later on in this report.

I also feel that I could have selected a better prototyping tool to showcase the potential of my designs. I chose to use Adobe XD as this was the tool I was most familiar with, and had found Anima, a plug in that would allow me to create working form and text input fields. The plug in required me to run the As I got deeper into the design process I found that the free trial of Anima would not allow for components and similar advanced XD techniques to be ran through the plug in, which would ultimately effect the final functionality when it comes to testing. If I was to redo this project I would have definitely used a different prototyping tool, for example UXPin is a similar prototyping tool that has interactive text input fields readily available.

7.3 Future Work

Through self reflection and conducting user testing, it is clear to see what the next steps need to be to advance this project further. One immediate recommendation would be to move the project over to a team of designers and developers with a budget who could delegate focus onto more specific roles within the project. If the project had been split between two teams, one to focus on the front end and one to focus on the form builder UI then there could be a more balanced depth of development between both. A budget could also be given to these team to use plug ins such as Anima to take the project in its current state to the next stages of development to take the currently existing prototypes into fully functioning web pages. Dedicated JavaScript developers would work

with existing frameworks such as the jQuery form builder to set up the back end package for prospective clients to purchase.

 If these actions were implemented successfully, it would go a long way to solving the client specific problem statement aforementioned in this report and having a Minimum Viable Product to take to a prospective buyer. The research has clearly pointed to the need for senior web users to be catered for more directly in the online world, and that all factors point towards the issue worsening as the world adapts to a post COVID-19 society.

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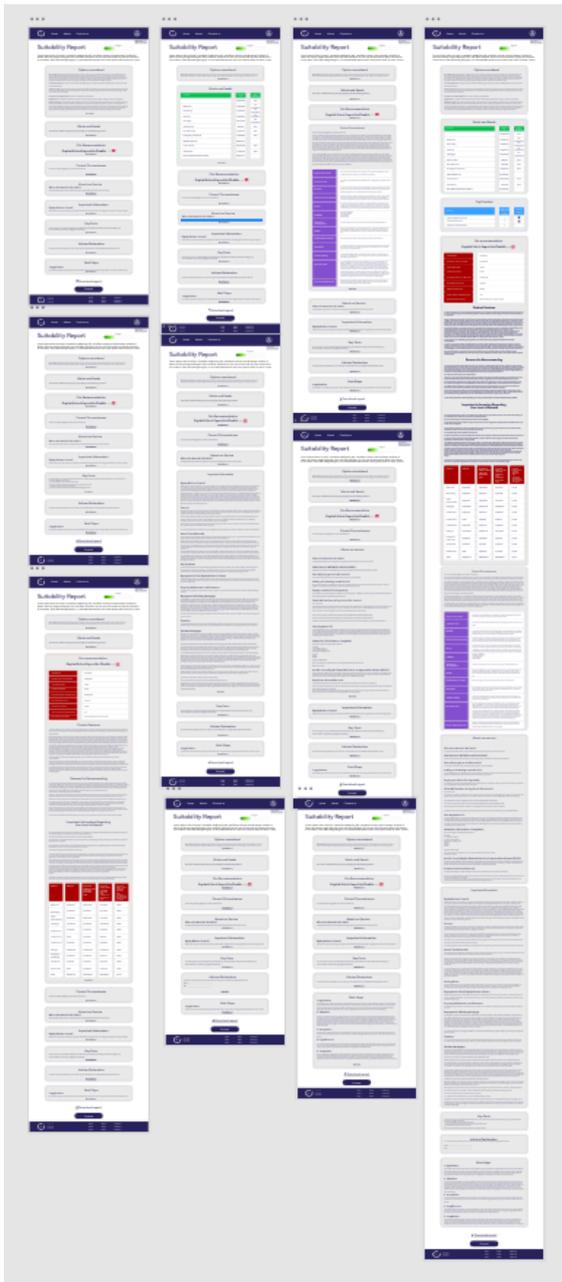World Wide Web Consortium (2010) *Older Users and Web Accessibility: Meeting the Needs of Ageing Web Users* https://www.w3.org/WAI/older-users/

Appendices

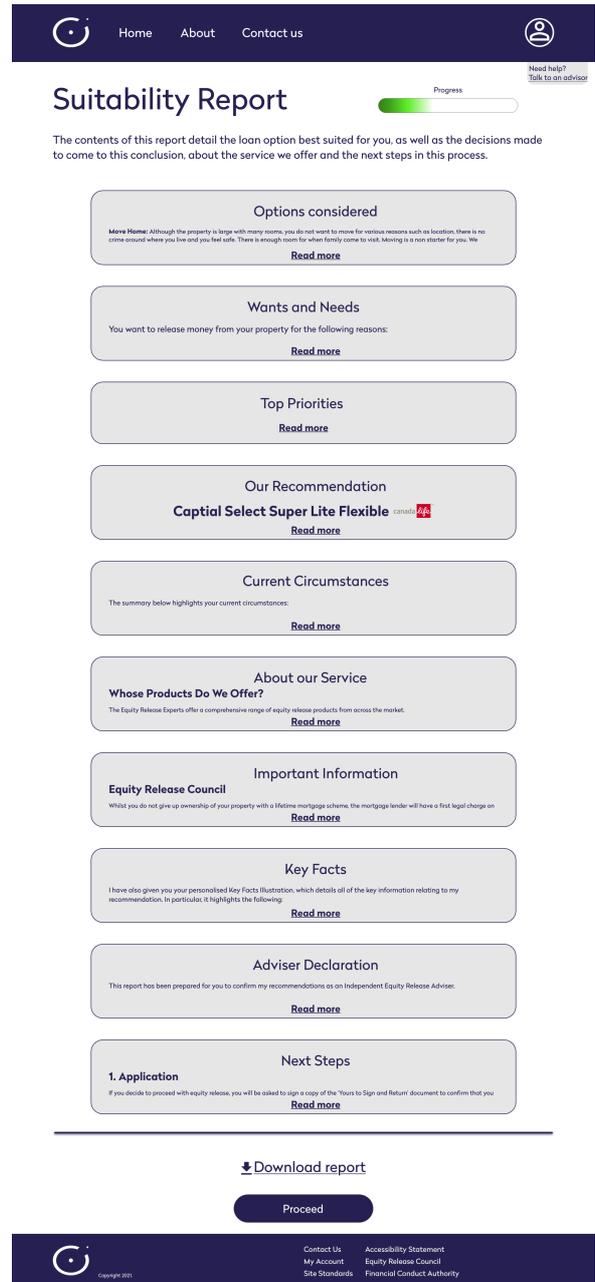**FIG. 20 ORIGINAL SUITABILITY REPORT DESIGN**

FIG. 21 SUITABILITY REPORT COMPONENT DESIGN

Tendencies of internet users over the age of 55

Please answer all questions honestly - all answers are kept anonymous.

Which age range do you fall in? *

○ 55-64

○ 65-74

○ 75-80

○ 81+

What device do you mainly use for online services? E.g: online shopping, social media, mobile banking etc. *

○ Mobile phone

○ Tablet

○ Laptop/PC

○ Other...

Are you more inclined to believe information you read online or from other information sources? *

○ Online

○ Other...

Do you find yourself struggling when going through online processes? E.g: setting up new accounts, booking tickets, filling out forms etc. *

○ Yes

○ No

○ Sometimes

If you answered yes to the previous question, please explain what can often trigger these issues

Long answer text

Do you find error messages to be confusing when filling out online forms? *

○ Yes

○ No

Would you feel comfortable undertaking more services online rather than in person as a result of the COVID-19 pandemic? *

○ Yes

○ No

○ Maybe

Do you find feedback on how you're doing to be useful as you fill out complex online forms? *

○ Yes

○ No

Does use of technical wording confuse you when you're using the internet? *

○ Yes

○ No

○ Sometimes

Please use this space to suggest any features you think would make your overall experience using the internet more enjoyable. *

Long answer text

**FIG. 22 PRIMARY RESEARCH
QUESTIONNAIRE**