Green Home Finance Accelerator (GHFA)

Snugg Green Home Hub Pilot Project

End Of Pilot Report

March 2025

Contents

1. Executive Summary

1.1 Introduction

The **Green Home Hub (GHH)** is a digital platform that helps homeowners improve the energy efficiency of their home and transition to low carbon heating. Homeowners are referred to the GHH by banks that are seeking to reduce their financed emissions and lend to homeowners to finance their improvements. Distribution partnerships are also in place with other organisations that are seeking to help their customers improve the energy efficiency of their homes.

Throughout the pilot period, Snugg have built on the learnings from the Green Home Finance Accelerator (GHFA) Discovery phase to considerably accelerate the development and testing of new functionality within the GHH. These features collectively tackle two fundamental challenges of green home finance:

- **Challenge 1 - The level of friction in the end-to-end green home improvement journey:** there is homeowner confusion around what improvements to make, which installers to trust, and the grants available. These areas contribute to the general inertia that delays action being taken.
- **Challenge 2 - The financial case for making a green home improvement:** for the majority of homeowners the payback period for some measures is likely to be 20-30 years or more. Several levers require attention to address this, including but not limited to attractive interest rates on loans.

Both of these challenges are significantly reducing the demand for green home finance and, more crucially, impacting the progress of the UK towards achieving its goal to reduce home emissions. However, by fully addressing these challenges, there is a clear pathway to achieving this goal.

The GHH pilot scope was divided into four pillars (A-D). Each pillar was a workstream that ran throughout the 14 months period, delivering multiple features into the GHH at each quarterly milestone and then testing and enhancing those features in subsequent milestones.

Challenge 1: Optimising the customer funnel

The volume of households that are taking action to green their homes is severely impacted by high rates of ‘drop off’ throughout the home retrofit funnel. Homeowners typically go through a journey of consideration (‘I know I need to improve my home’s energy efficiency’) though evaluation (‘I’m actively trying to understand what I need to do and at what cost’) to taking action (‘I’ve made an improvement’) and beyond that to refinement (‘I’m monitoring the impact of the changes I’ve made and looking to do more’).

Currently, the number of people making changes is well behind where it needs to be if the UK is to reach net zero by 2050. For example, just under 60,000[1] heat pumps were installed in 2024 against a target of 600,000 per year by 2028.

Through the GHH pilot, Snugg has identified, built and tested a wide range of product features and customer strategies that directly address this drop off and maximise the number of homeowners taking action, specifically:

- **Pillar A:** Personalisation of plans, content, and communications to suit individual homeowner needs.
- **Pillar B:** Providing more accurate and costed improvement plans, including the ability to request instant digital quotes and referrals to trusted assessors and installers.

Challenge 2: Enabling more homes to save money from day one

Figure 1 below demonstrates the impact of a range of interventions on the financial case for improvement that can be made by governmental, financial and other organisations including Snugg. This example is for a £25,000 budget retrofit, including heat pump.

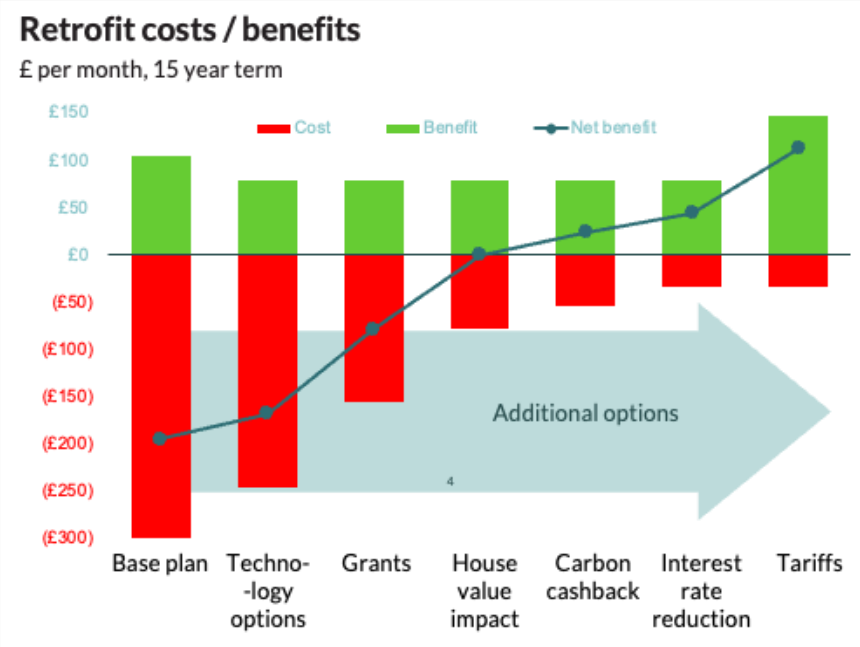

Figure 1 – Retrofit costs / benefits[2]

[1] Source: MCS, 58,208 certified heat pump installations in 2024.

[2] Based on typical improvement plan of c. £25k consisting of a heat pump and various insulation measures; technology options optimised through GHH to increase payback; inclusion of all applicable grants (i.e.

An analysis of over 30,000 plans developed using the Snugg tool indicates that application of all these interventions could enable over 80% of retrofit projects to pay back from day one – thereby overcoming one of the single biggest barriers to adoption.

The GHH pilot has built and tested the impact of many features that enable and support these interventions, specifically:

- **Pillar C:** Simplifying access to grants and finance, helping homeowners understand and access finance options and recognise the potential property value impact of their improvements.
- **Pillar D:** Verifying improvements through smart meter integration and carbon credit rewards, incentivising homeowners to track their progress and demonstrate their achievements to lenders.

The project covers a UK-wide user base, and has successfully built collaborations with key financial institutions, technology providers, and industry experts. These partnerships are integral to enhancing the GHH's ability to reach and serve diverse customer needs.

The GHH pilot project has focused on educating homeowners on the range of financial product types that can be used to finance green home improvements. This has included optional GHH referrals to a choice of green secured lending (from Perenna Bank and Scroll Finance) and unsecured product finance options (e.g. from Sunsave). As a Financial Conduct Authority (FCA) regulated broker, Snugg has helped homeowners navigate the complex landscape of grants and financial products and assisted them in choosing the appropriate solution for their own circumstances.

1.2 Key Dates & Financials

Snugg's Green Home Finance Accelerator (GHFA) funded projects operated in two main phases:

- **Discovery Phase:** 24th April 2023 to 3rd October 2023.
- **Pilot Phase:** 18th December 2023 to 14th March 2025.

The GHH Pilot Phase project was awarded a £1,995,204 grant by the Department for Energy Security and Net Zero's GHFA programme (funded by the Department's Net Zero Innovation Portfolio). The total eligible costs of the project were £2,800,548 with £805,344 of match funding being provided by Arniston (trading as Snugg).

The GHH Pilot Phase for Snugg was broken into seven milestones. As shown in Figure 2 below, the first five milestones were product-based deliverables, with the last two milestones covering the delivery of the End of Pilot Report.

£7,500 Boiler Upgrade Scheme); consideration of house price impact (c.£10k), 50% used to justify use of savings; Carbon Cashback assumed value of £2,000 over 10 years; borrowing rate reduced from 12% to 4%; use of smart tariff and closing 'spark gap' doubles monthly savings. Further details available from Snugg.

MS#	Milestone	Start Date
1	Mobilisation Complete	Feb ‘24
2	Delivery Phase 1 Complete	Mar ‘24
3	Delivery Phase 2 Complete	June ‘24
4	Delivery Phase 3 Complete	Sept ‘24
5	Delivery Phase 4 Complete	Dec ‘24
6	Submission of End of Pilot Report 1st Draft	Jan ‘24
7	Submission of End of Pilot Report Final Draft	Feb ’24

Figure 2 - Key Milestone Plan

1.3 Grant Amount

The total grant amount awarded to Snugg was £1,995,204. This amount was claimed over five quarters. The grant amount claimed at the time of writing was broken down as shown in **Error! Reference source not found.** Figure 3 below.

Quarter	Milestone	Grant Awarded	Grant Claimed
Q1 (Dec 2023 – Mar 2024)	MS1, MS2	£417,430	£403,888
Q2 (Apr 2024 – June 2024)	MS3	£477,621	£433,974
Q3 (July 2024 – Sept 2024)	MS4	£587,023	£421,502
Q4 (Oct 2024 – Dec 2024)	MS5	£365,044	£360,540
Q5 (Jan 2025 – Feb 2025)	MS6, MS7	£148,085	TBC

Figure 3 - Grant Amount Awarded

1.4 Scope

The GHH has been used to access a UK-wide user base, and has successfully built collaborations with large financial institutions (including TSB, NatWest, Yorkshire Building Society and Scottish Building Society), the consumer advice body Which?, multiple data and technology providers and other industry experts. These partnerships are integral to enhancing the GHH’s ability to reach and serve diverse customer needs. More detail is provided in section 6.1.

1.5 Objectives

Figure 4 shows the pilot objective for each GHH pillar.

Pillar	Objective	Gaps, barriers and opportunities addressed
A	**Increase the engagement of homeowners -** through the	• Engaging homeowners in energy efficiency improvement is a pre-cursor to a market for green

	development of a personalised digital journey and supporting direct marketing capability to nudge users towards taking action to green their homes.	home finance to exist, and engagement levels are currently very low (e.g. annual UK heat pump installations of 60,000 in 2024 versus a 2028 annual target of 600,000). • Generic retrofit recommendations can discourage homeowners by not reflecting their unique needs.
B	**Improve homeowner trust in our recommendations –** by enabling the creation of instant digital quotes and referrals to trusted assessors to validate and enrich the digital improvement plan.	• Research from the Discovery Phase showed that 84% of homeowners have a poor understanding of retrofit costs. Most digital planning tools use (often out-of-date) industry averages for cost estimates rather than installer-specific estimates • Older, more complex homes often require a physical assessment to highlight issues such as dampness. Human involvement and a more detailed physical assessment can provide reassurance to homeowners before progressing with changes.
C	**Improve the financial case for change -** by helping homeowners understand their eligibility for grants and relevant financial product options. We also sought to improve the financial case for taking action through estimating the potential property value impact of their improvements.	• There was a clear gap in the provision of guidance on available grants in this sector, only 40% (source: Snugg Survey) said that before using the GHH they felt informed about ways to pay for home energy efficiency improvements. • Similarly green financial products are being developed in isolation, generating confusion amongst homeowners in terms of the right financing solution for them. • The perceived long-term payback for many improvements does not take account of the increase in property value that green home improvements can deliver.
D	**Verify, monitor and reward improvements** through smart meter integration and a new carbon credit proposition (Carbon Cashback, see below), incentivising homeowners to track their progress and demonstrate their achievements to lenders.	• There was previously limited means for UK homeowners to monitor carbon emissions from home energy usage. • The benefits of retrofit can often be marginal and there is currently no carbon credit available to individual owner-occupiers to reward their green improvements.

Figure 4 - Pilot Objectives

Carbon Cashback

As part of pillar D, Snugg have developed an innovative financial product that rewards homeowners for the carbon emissions that they avoid by improving the energy efficiency of their home and switching to low carbon heating.

The Key Objectives of Carbon Cashback

- **Encourage Energy Efficiency:** Providing monetary rewards to households that actively reduce energy consumption.
- **Increase Homeowner Interest in Retrofit Solutions:** Many homeowners can only afford home retrofit measures through borrowing, with affordability particularly low for potentially expensive upgrades such as heat pumps. Carbon Cashback improves the

financial case for installing a heat pump by monetising the carbon savings achieved through displacing gas.

- **Incentivise Increased Ambition:** Encourage and enable households to engage with their energy consumption and easily understand the impact their measures have had. Evidencing impact and demonstrating value is likely to incentivise homeowners to install additional measures.
- **Address Key Issues in the Carbon Credit Market Using Smart Meter Data:** By leveraging smart meter data, Carbon Cashback ensures that the carbon reductions being credited are measurable, verifiable, and directly attributable to homeowner actions in the UK. This approach enhances trust in carbon credits by offering a transparent link between behaviour and emissions reduction.
- **Address Challenges Faced by Lenders in Proving Lending Impact:** Carbon Cashback provides valuable data which can be utilised to develop innovative green financial products by providing evidence of the impact lending has had on a home's energy consumption.
- **Support National Net Zero Goals:** Contributes to broader climate and decarbonisation targets at the household level. UK corporates can buy high quality carbon credits benefitting their native country; accelerating the UK's journey to net zero at zero cost to the public purse.

1.6 Key Achievements

The GHH pilot has provided meaningful insight across all four pillars, as summarised in Figure 5 below and explained further throughout this report.

Pillar	Key achievements	Key insights
A	• Personalised journeys guided users through tailored pathways based on their specified motivation, acting like an educational tool. • Personalised, targeted emails were used to guide users to specific tools. • Simplified navigation helped users more easily access GHH features.	• 8% of users read personalised articles during onboarding, 6% from the GHH dashboard (based on 32,400 GHH users during pilot period) • Retention increased by 50% for those who had viewed personalised articles. • Targeted, motivation-based segmentation increased conversions, leading to 50% higher app visits based on emails sent to 1.5k users.
B	• Tested a physical survey referral for users that need a human intervention before proceeding with their plans. • Implemented digital estimations tools and quote comparison functionality, enabling users to manage delivery of their improvement plans using the GHH.	• An initial pilot of 137 Which? members led to 32 requesting the survey.
C	• The Grants Checker was successfully deployed within GHH journeys and as an	• The Grants Checker is consistently the most-used feature of the GHH, both within the integrated journey and when deployed as an API.

	API[3]. It simplified the complex process of understanding eligibility. • Implemented a direct, pre-qualified referral for Great British Insulation Scheme (GBIS) funded improvements, via EDF. • Implemented a Finance Finder tool, enabling homeowners to review and model differing finance options for funding retrofit. • Developed an improved approach to the calculation of house price impact.	• 14% of users that have used the grants checker go on to request a quote or complete a similar action.
D	• Developed a Carbon Cashback proposition to incentivise homeowners to reduce their home emissions. • Implemented a smart meter consent journey and integration, enabling accurate baseline and reduced emission calculations.	• In qualitative testing of 9 potential users, 78% indicated that Carbon Cashback would influence their decision to proceed with making an improvement. • Participants rated the process as easy (91%) and transparent, helping them trust the feature.

Figure 5 – Key achievements

Unexpected results

During the pilot, several unexpected results emerged, requiring adjustments and additional effort to address them. These surprises highlighted both technical and user-centric challenges, ultimately shaping how the platform evolved.

- **Poor smart meter data quality:** Smart meter data quality was unexpectedly poor, with gaps and inconsistencies that made it difficult to provide accurate insights to users. The team developed robust back-end solutions to estimate and fill in missing smart meter data—an effort that, despite requiring significant resources, maintained platform credibility and user trust by ensuring the delivery of reliable and actionable information.
- **Landlord motivation in personalised journeys:** Landlord-focused features in the personalised journeys were more popular than anticipated, even though new regulations targeting landlords had not yet come into effect. This motivation was pitched as ‘lower your EPC’, appealing to landlords looking to improve their property’s Energy Performance Certificate rating. Since introducing landlord-specific motivations, 15% of the 1500 users for whom it was available have selected it, making it the third most chosen motivation after “Start smaller, feel warmer” and “Not sure.” Overall, this accounts for 7% of all users since motivations were introduced.

Demonstrating scalability

Following extensive development and iteration through the Pilot Phase, the GHH is ready for full-scale commercial deployment. Furthermore, we now have established partnerships (in particular through Which?, TSB and Yorkshire Building Society) that provide a route to market to facilitate this.

[3] Application Programming Interface: a set of rules that allow software applications to communicate with each other

As we further deploy the GHH we will continue to address some critical factors for successful scaling, notably in the following areas:

- **Improved engagement through to installation:** We will continue to drive personalisation of the product, including implementation of a ‘Next Best Measure’ capability utilising an Experian-based segmentation approach. By providing more targeted journeys, content and messaging (e.g. to users that qualify for grant funding on a particular improvement in their plan), we believe that this will further increase the number of people taking action.
- **Enabling more homes to save money from day one:** Improving the actual and perceived consumer financial benefits of energy efficiency improvement is critical to driving traction. We will continue to evolve our thinking in this area, encompassing further optimisation of improvement plans, further increasing awareness and accessibility of grants, achieving more rigour (and institutional endorsement) of the impact of retrofit on house price, optimal use of tariffs in benefit assumptions and attractive financial solutions to flag to our users.
- **Successful delivery of Carbon Cashback proposition:** This feature is recently launched and therefore will need to evolve following initial user feedback and as the full life cycle from user registration through to sale of credits is fully tested. Once fully launched, we anticipate that this feature will provide users a significant incentive to take action on their homes and, through continued engagement in the GHH to track the generation of carbon credits, make improvements over time.

2. Pilot Project Summary

The purpose of the Pilot Project was to build and evaluate the effectiveness of various features in encouraging homeowners to make improvements to their home and, in particular, explore finance options to help fund those improvements.

The Pilot project was delivered over multiple phases, with new features being delivered and continuously tested throughout. The formal 'Pilot Launch' took place in Q3 with the launch of Finance Finder (see work package C3 below) and a referral to various financial products (work package C4). Figure 6 below summarises the work completed across all pillars.

Work package	Work completed	Results achieved or expected
A1 – Personalised content	• Implementation of a Content Management System (CMS, Strapi) enabling content within the GHH to be personalised according to user characteristics. • Initial testing of CMS capability, tailoring content based on user motivation.	• Increased engagement from users as a result of signposting more relevant educational content. • For example, our data highlighted that those who clicked into personalised articles were approximately 50% more likely to return to the product.
A2 - Personalised journeys	• Implementation of 5 tailored onboarding journeys to create plans that best align with a customer's interests including: 'Start Small', 'Solar Interest', 'ASHP Interest', 'Reduce CO2' and 'I'm not sure'.	• Increased engagement through creating a more relevant plan that aligns to a user's desired outcomes. • Users who completed a personalised journey were 2 percentage points more likely to take an improvement action (such as requesting a quote, marking an improvement as done or connecting a smart meter) than those that didn't.
A3 - Personalised messages	• Implementation of a marketing automation platform (Braze) to enable personalised messaging at scale. See section 8.1 for more detail • Improved Customer Data Platform capability to better segment users based on their attributes and behaviour.	• Increased user retention, and propensity to act on their home improvement plans through targeted email nudges. • Targeted, motivation-based segmentation increased conversions, leading to 50% higher app visits compared to broad segmentation, based on emails sent to 1.5k users.
B1 - Cost estimation	• Implementation of a cost refinement journey. This enables GHH customers to request and view more accurate costs for solar panels within the platform, without the need to request a formal quote.	• An improved customer understanding of the costs associated with home energy retrofit.
B2 - Physical survey	• Partnership with home surveyor firms Harvey Donaldson & Gibson (HDG) and Enable Services.	• Increased quote requests driven by increased homeowner confidence.

	• Implementation of a 'Request a home survey' journey within the GHH.	• Increased revenues through survey commissions. • During the initial Pilot the physical survey proved very popular, with 22% of 137 eligible users requesting to book. • Since relaunch with a much wider audience, we have seen 6% of eligible users express interest and 2% book.
B3 - Quote entry	• Implementation of the manual upload quote journey, enabling customers to add received quotes to the platform.	• Aiming to increase engagement in the GHH by enabling the user to store all information relating to their home energy improvement plans in one place.
B4 - Quote/estimate comparison	• Ability to compare Snugg estimated costs with any digital estimates and quotes obtained across multiple suppliers.	• Aiming to empower users though better understanding of the financial costs associated with home energy retrofit.
C1 - Grants Finder	• A user-friendly interface to check grant eligibility based on planned improvements, council tax band, benefit status, etc., providing clear instructions on how to proceed with an application. • Subsequent implementation of the GBIS[4] and HUG[5] grant eligibility criteria into the grants API. • Continuous monitoring of new grants and changes to eligibility criteria. • Expansion and integration of the Grants Finder into the GHH.	• 40% of 15k registered users engaged with the Grants Finder to better understand the grants available to them. • Adopted as an API by NatWest Bank within their Home Energy Hub. • 51% of users who requested a quote through the GHH were eligible for at least one grant. These users were 49% more likely to request a quote.
C2 - House price impact	• Partnered with Bricks & Logic (a property technology firm) to create a calculation model that can predict the price increase associated with home energy retrofit to a reasonable degree of confidence.	• Increase engagement in GHH by enabling customers to have more confidence in the financial case.
C3 - Finance Finder	• Implemented a 'ways to borrow' tool that enables GHH customers to explore how borrowing could help pay for home energy improvements over a period of years. • Implemented a 'ways to pay' tool that helps GHH customers understand	• In a survey of GHH users, 64% agreed that they had 'a better understanding of how to pay or get grant funding' • Based on 125 users, we have seen a 65% uplift of users who visit the Finance Finder requesting quotes.

[4] Great British Insulation Scheme – provides funding to low energy efficiency homes to install insulation improvements

[5] Home Upgrade Grant (HUG) - a government programme that helps low-income households in England make their homes more energy efficient

	how different finance products / options could help them pay for home energy improvements.	• The most explored finance product is 'Mortgages', attracting 60% of users who visited the Finance Finder, followed by 'Savings' (52%) and 'Personal loan' (48%).
C4 - Financial product integration	• Implemented a journey enabling users to find out more about a long-term fixed mortgage with retrofit discount (with Perenna) and a green equity loan (with Scroll).	• Aiming to increase uptake in green financial products. Limited clickthrough to date given restriction of this feature to direct customers.
D1- Verification	• Implemented appropriate journeys to verify an improvement that has been lodged with MCS or Trustmark or (if neither available) enable the user to upload an invoice.	• Aiming to support financial institutions with verification of green lending and to underpin the Carbon Cashback proposition (D4).
D2 - Smart meter connection	• Implemented a journey to connect a user's smart meter to the GHH. • Embedded calculation of projected improvement benefits based on actual current energy consumption.	• Increased user retention via targeted nudges, and desire to monitor energy usage. • Increased user engagement via a better understanding of the benefits of home energy retrofit by better calculating the annual savings based on real user energy bills. • Users who connected their smart meters are 124% more likely to return in their second week than those that don't, based on 121 users.
D3 - Smart meter visualisation	• Implemented a smart meter data visualisation journey where users can see their monthly electricity and/or gas consumption together with the carbon footprint for each month.	• Increased user retention through the desire to regularly monitor energy usage. Early usage shows that the users who have connected their smart meter are 70% more likely to return to the product once in every 3 months than those who don't.
D4 - Carbon Cashback	• Implemented a journey to enrol for carbon credits. • Site visit conducted with our VVB[6] and continued work on progressing to the stage where a formal validation application can be submitted to Verra.	• Anticipating an increase in the number of users taking action due to an improvement in the cost / benefits case.

Figure 6 - Work Packages Completed

[6] Validation and Verification Body - an independent, third-party auditor responsible for verifying that carbon offset projects meet the required standards and accurately measure their emissions reductions.

2.1 Customer Target Group

The primary customer group for the GHH service is homeowners that are at an early stage in their understanding of home energy efficiency. This has been driven by the requirement from our distribution partners (e.g. banks) to provide a service that educates and guides the full breadth of their customer base, rather than targeting the 'low hanging fruit' of people that are already interested. This represents a broad range of customer groups, our understanding of which has evolved during the course of the pilot.

During the development of personalised journeys (pillar A2) we identified a motivation-based segmentation, as shown in Figure 7 below.

Motivation name	Customer need	Tailored approach taken and results
Start Small, Feel Warmer	Homeowners who are overwhelmed by large-scale retrofitting projects and high costs, needing a gentler on-ramp to retrofit activities.	• **Breaking Down Cost Barriers**: By encouraging smaller, more affordable actions first, "Start Small" made retrofitting feel less daunting. • **Incremental Progress**: Users could see immediate, manageable wins, increasing receptiveness to bigger retrofit measures down the line. • **Positive User Feedback**: Some users specifically appreciated focusing on smaller tips, reducing the sense of being overwhelmed.
Solar Panels	Homeowners interested in solar panels sought estimates, reliable installers, and a clear understanding of payback periods.	• **Dedicated, Tailored Path:** This journey offered relevant quotes and background on solar PV technology, guiding users through feasibility and returns. • **Sunsave Integration:** Users can answer a few targeted questions for a more accurate cost and financing estimate from Sunsave (using our FCA authorisation). This enhancement bolsters personalisation by giving tailored installation and cost predictions, helping users feel more confident about the potential benefits.
Air source heat pump	Homeowners interested in air source heat pumps sought estimates, reliable installers, and a clear understanding of payback periods.	• **Dedicated, Tailored Path:** This journey offered relevant quotes and background on air source heat pump technology, guiding users through feasibility and returns. • **Tailored articles:** This journey also offered a heat pump guide that allowed users to explore the benefits in more depth, thus increasing consumer confidence.
Reduce CO2	Environmentally driven homeowners interested in identifying the improvements that would best reduce their CO2 impact.	• **Dedicated, Tailored Path:** This journey optimised our home energy calculator model to recommend measures that best reduced CO2.
Improving my EPC	Landlords seeking to comply with potential EPC regulation.	• **Dedicated, Tailored Path:** This journey optimised our home energy calculator model to recommend measures that improve EPC rating and cost no more than £10,000. •

I'm not sure	For homeowners just starting out in their retrofit journeys, they may not be sure where to start.	• **Dedicated, Tailored Path:** This journey recommended a wide range of measures at various price points, to ensure the homeowner understood the breadth of measures they could consider and implement. • **Tailored articles:** This journey also offered energy efficiency tips and tricks guide to help these users become more informed about the benefits of following a retrofit journey.

Figure 7 – User motivations

Latterly, we have undertaken a more detailed segmentation exercise using Experian's Mosaic segmentation model to profile 12,500 registered users. At an anonymised, aggregated level, the exercise mapped all our existing users to a Mosaic segment. This model divides the UK population into 15 Groups and 66 more detailed types. It uses over 2000 data variables and paints a unique picture of UK consumers based on their demographic characteristics, lifestyles and behaviour.

This exercise has highlighted a significant variance in the profile of users depending on the distribution partner that has referred the user to the GHH, as is shown in Figure 8 and Figure 9 below.

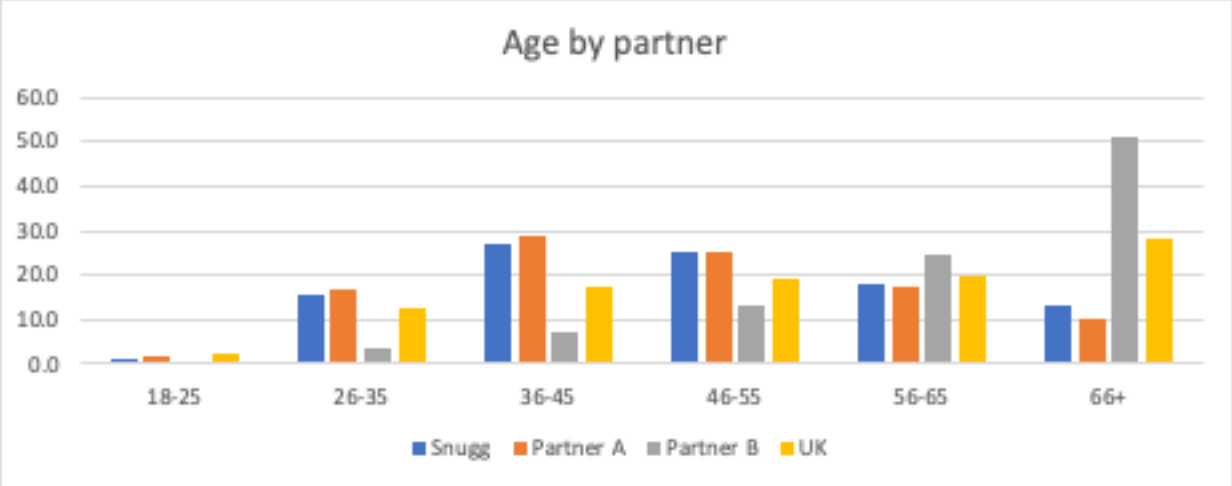

Figure 8 – Distribution of user age by GHH partner

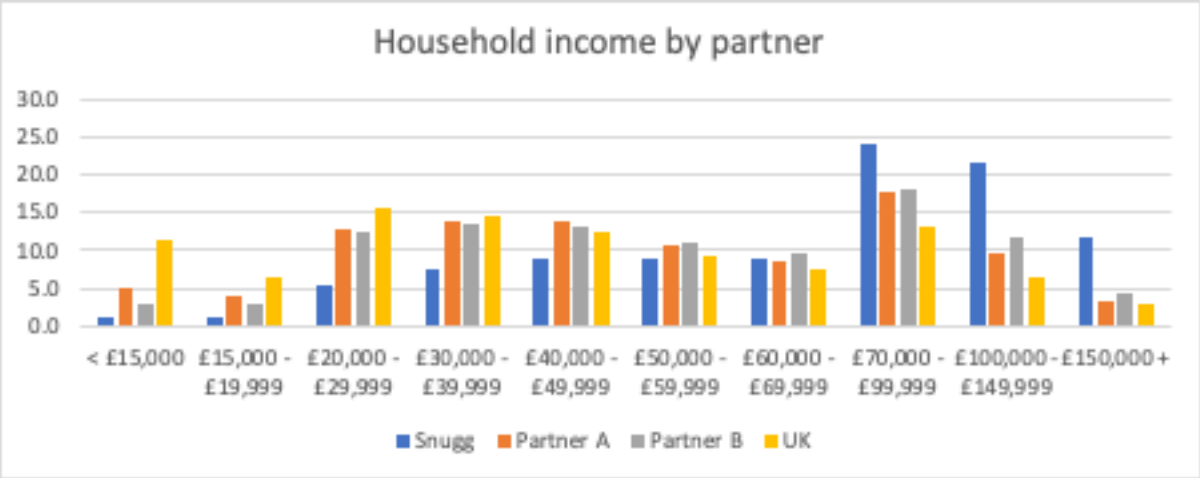

Figure 9 – Distribution of user household income by GHH partner

GHH users who come from our partnership with Partner B are significantly older, with 51% aged 66+. Users from Partner A are younger, but also have lower household incomes than those that have come from Partner B or directly to the snugg.com website.

The most common Mosaic groups in our userbase are:

- **B – Prestige Positions (18%):** Established families in large, detached homes living upmarket lifestyles.
- **C – Country Living (11%):** Well-off owners in rural locations enjoying the benefits of country life.
- **G – Domestic Success (11%):** Thriving families who are busy bringing up children and following careers.

We also see higher representation of 'H' – Aspiring Homemakers (Younger households settling down in housing priced within their means) and 'I' – Family Basics (Families with limited resources who budget to make ends meet) among our bank-referred users.

2.2 Geographic Restrictions

Our customers are located across the UK, based on the coverage of our distribution partners. The GHH faced certain geographic restrictions during the Pilot Phase, primarily due to data availability and partner limitations. These restrictions were:

- **Limited EPC Coverage in Northern Ireland:** During the Pilot we were able to gain access to Northern Ireland Energy Performance Certificate (EPC) data. However, due to a lack Unique Property Reference Number (UPRN) in the dataset, we were unable to fully integrate this data, reducing the impact of insights and recommendations for users in this region.
- **Installer Availability and Regional Feature Access:** The availability of local installers influenced how we deployed certain features of the GHH. For example, the Solar PV Cost Estimation feature, which relies on specific installer networks, was only available in England and Wales. Consequently, users in these areas had access to this functionality, while it remained unavailable elsewhere.

While these geographic restrictions were dictated by external factors, we are actively working with partners to address these gaps and ensure broader availability of features and services in the future.

2.3 Compliance

FCA Authorisation

As a firm regulated by the Financial Conduct Authority (FCA), Snugg has permissions to act in the capacity of a credit broker with limited permissions (secondary credit broker). The products and services piloted in this initiative were all permitted within the scope of these permissions. Also, compliance reviews were conducted at each step of the pilot to ensure that any new features were within the scope of the permissions that have been awarded to Snugg.

To ensure compliance with the scope of permissions and associated regulations, business initiatives were reviewed internally and externally for FCA compliance and, if deemed necessary, went through legal review and ultimately the FCA were notified if the initiative was deemed too different to the business model which was presented during the application process with the FCA.

Consumer Duty

One of the key components of FCA compliance from Snugg's perspective is compliance with the Consumer Duty (The Duty, which came into effect in 2023). The Duty requires that firms take reasonable steps to avoid causing foreseeable harm, enable customers to pursue their financial objectives and act in good faith towards customers.

With these rules in mind, all copy for inclusion on the website was reviewed to ensure it was always clear and consistent, fair and not misleading. Generally, few changes were required as the company follows this approach from the outset, however, on occasion additional information was necessary following review of the FCA Handbook (such as the requirement to include a representative example for Financial Promotions).

Consumer Credit Act

Additionally, there is a risk to lenders that inadequate installations will result in poor outcomes for the customers. Customers are protected by the Consumer Credit Act Section 75. However, in many cases this leaves the risk with lenders. Snugg partner with firms who are accredited by relevant trade bodies to mitigate the risk of installations not meeting expectations, minimising the risk to the lender.

Greenwashing

This risk refers to the potential for lenders to be seen as endorsing or benefiting from overly optimistic claims about energy efficiency improvements without sufficient verification. The FCA's anti-greenwashing rules (May 2024) are critical to ensure that financial products and promotions are both legally sound and transparent, thereby protecting lenders from reputational and regulatory risks. Snugg approaches this in the same way as the Consumer Duty, aiming to inform the consumer with transparent

information. We do this by ensuring customers understand where calculations or estimations have been applied in the process.

Accessibility

By embedding accessibility considerations into the design process, the GHH aimed to create an inclusive product that could support underserved or hard-to-reach customers, even without direct identification of their specific vulnerabilities. Measures taken included:

- **Compliance with WCAG AA Standards:** All features of the GHH were designed in compliance with the Web Content Accessibility Guidelines (WCAG) AA standards. This ensured that the platform met widely recognised accessibility requirements, making it usable for individuals with disabilities or other accessibility needs. Where a user contacts the Snugg team with an accessibility issue, we use email and telephony channels to help the user better access the GHH, e.g. through screen reader technology.
- **Plain English Communication:** We simplified financial communications using plain English so even users with limited financial literacy can easily understand the information. All new GHH features are fully tested with users to ensure understanding.

All written communication at Snugg follows our tone of voice guidelines which centre around the four key pillars of easy-going, conversational, authentic and simple.

Going forward we are planning to use Experian consumer segmentation to further understand the sociodemographic profile of GHH users. For example, we may be less likely to promote a heat pump to a user where this is likely to incur significant up-front cost and the Experian profile suggests that the user may be in difficult financial circumstances.

3. Pilot Timeline

3.1 GHFA Main Deliverables

The GHH main project was broken into seven milestones with deliverables being split between four pillars (A-D). The first five milestones were product deliverables with the last two milestones covering the delivery of the End of Pilot Report. Figure 10 below provides more details of the five milestones.

MS#	Milestone	Date	Deliverable
1	Mobilisation Complete	Feb 24	A1 - Documentation justifying selected CMS system and technical specifications A2 - Documentation providing justification for each defined onboarding journey B2 - Documentation showing partnering agreement for physical surveyor C1 - Documentation presenting grant pre-population rules C3 - Document describing the rules for the finance options checker D2 - Documentation showing smart meter data agreement D4 - Document showing appointment of 3rd party as Snugg's Validation Verification Body (VVB)
2	Phase 1 Complete	Mar 24	A1 - Product demonstration of creating different landing / content pages for different user entry points A2 - Product demonstration of the custom onboarding journey for one additional user type B2 - Product demonstration of user requesting a physical survey, and viewing results C1 - Product demonstration of Grants Finder pre-population functionality C3 - Product demonstration of finance options checker for a user D2 - Product demonstration of a user connecting their smart meter into Product
3	Phase 2 Complete	Jun 24	A1 - Product demonstration of existing green home hub content interfacing seamlessly with the new CMS system (i.e. migration complete) A2 - Product demonstration of all 3 custom onboarding journeys A3 - Product demonstration of new notification / email automation system, based on engagement plans B1 - Cost sources defined and data architecture detailed in technical documentation C2 - Data architecture document with Bricks and Logic interface design C4 - Document describing user journeys for finance partners integration (Perenna and Scroll) D1 - Document showing data architecture and business rules for integration with Trustmark D4 - On-site audit from VVB complete

4	Phase 3 Complete	Sep 24	A3 - Demonstration of new custom notifications / email messaging based on engagement plans for different user types B1 - Product demonstration of new cost features for measures in users' plans B3 - Product demonstration of user entering a quote into the GHH C4 - Product demonstration of Scroll integration and Perenna integration D1 - Product demonstration of being able to validate with MCS that an improvement has been made D4 - Demonstration of a customer opting in to carbon credits agreement
5	Phase 4 Complete	Dec 24	B2 - Product demonstration of pre-population of physical survey, and integration of results back into the app B4 - Product demonstration of a user viewing numerous quote estimates C1 - Product demonstration showing a user starting a grant application C2 – Successful Bricks & Logic API response presented C2 - Product demonstration of enhanced breakdown of house value impact associated with a user's plan C4 – Document describing finance partner improvements D3 - Product demonstration of a user visualising their smart meter data D4 - Demonstrate functionality of carbon credit calculation to generate carbon credits for sale D4 - Document showing responses to VVB site visit enquiries

Figure 10 - Pilot Timelines & Deliverables

Each milestone of the programme was completed successfully and on-time. However, certain deliverables were delayed and submitted in subsequent milestones once relevant change requests were agreed. These changes did not have a material detrimental effect on the service offered to customers. Indeed, several of the agreed changes related to a customer insight-driven reprioritisation.

3.2 Project Risk Mitigation

Snugg utilised a risk register for the complete duration of the programme, including to manage the risk of delays. This risk register was maintained and monitored by the Project Manager. Risks were presented and discussed internally during Snugg's fortnightly steering calls. Highlighted risks were also presented and discussed in the GHFA monthly calls with our Monitoring Officer, and in the GHFA Quarterly Call with the Department for Energy Security and Net Zero (DESNZ). With this process in place, we were successfully able to keep control and mitigate all risks throughout the programme.

The key risks that were addressed through the pilot were:

- **Dependence on third parties:** This included provision of APIs to enable GHH features as well as organisations supporting our carbon credit verification. This was largely mitigated through regular status meetings involving relevant parties. However, where required, deliverables were deferred to subsequent milestones and other work was accelerated to ensure full utilisation of Snugg GHFA resource throughout.

- **Sufficient user volumes to provide insight:** The overall volume of users was addressed through new partnerships with Which? and other new lenders including Yorkshire Building Society, collectively adding c. 9,000 new users. In addition, the volume of users that utilised each individual feature was increased through targeted nudge emails and improving the navigation within the GHH.

There were several lessons learned about project timeline management during this pilot:

- As per the risk noted above, we were frequently relying on third parties for the provision of APIs, often necessitating data sharing agreements and commercial negotiation. Closer engagement of third parties, alongside building a shared ambition at the start of the collaboration, would help to mitigate this risk.
- The process to submit all deliverables, grant claims and milestone invoice should begin 3-4 weeks before the milestone is due to finish. This allows sufficient time to complete the many tasks required.
- There was a significant demand on resources when our pilot was formally launched at the end of September 2024 with many features going live. At the same time, we had to submit many deliverable reports, demonstrators and a grant claim. Furthermore, we had to submit the Interim End of Pilot Report deliverable. This put a huge strain on our resources, and with hindsight, we would have requested to push back some of the submissions/reporting into October 2024.

4. Integration and Utilisation of Technology

4.1 Technological Solutions Implemented

Figure 11 shows Snugg's high level architecture with the core web app at the top, serving desktop and mobile web from our Postgres DB in the centre. Other core systems that we integrate with are shown with arrows indicating data flows, e.g. our CMS (Strapi) and our marketing automation system used for targeted nudge email campaigns (Braze) and our analytics systems (GA and Amplitude).

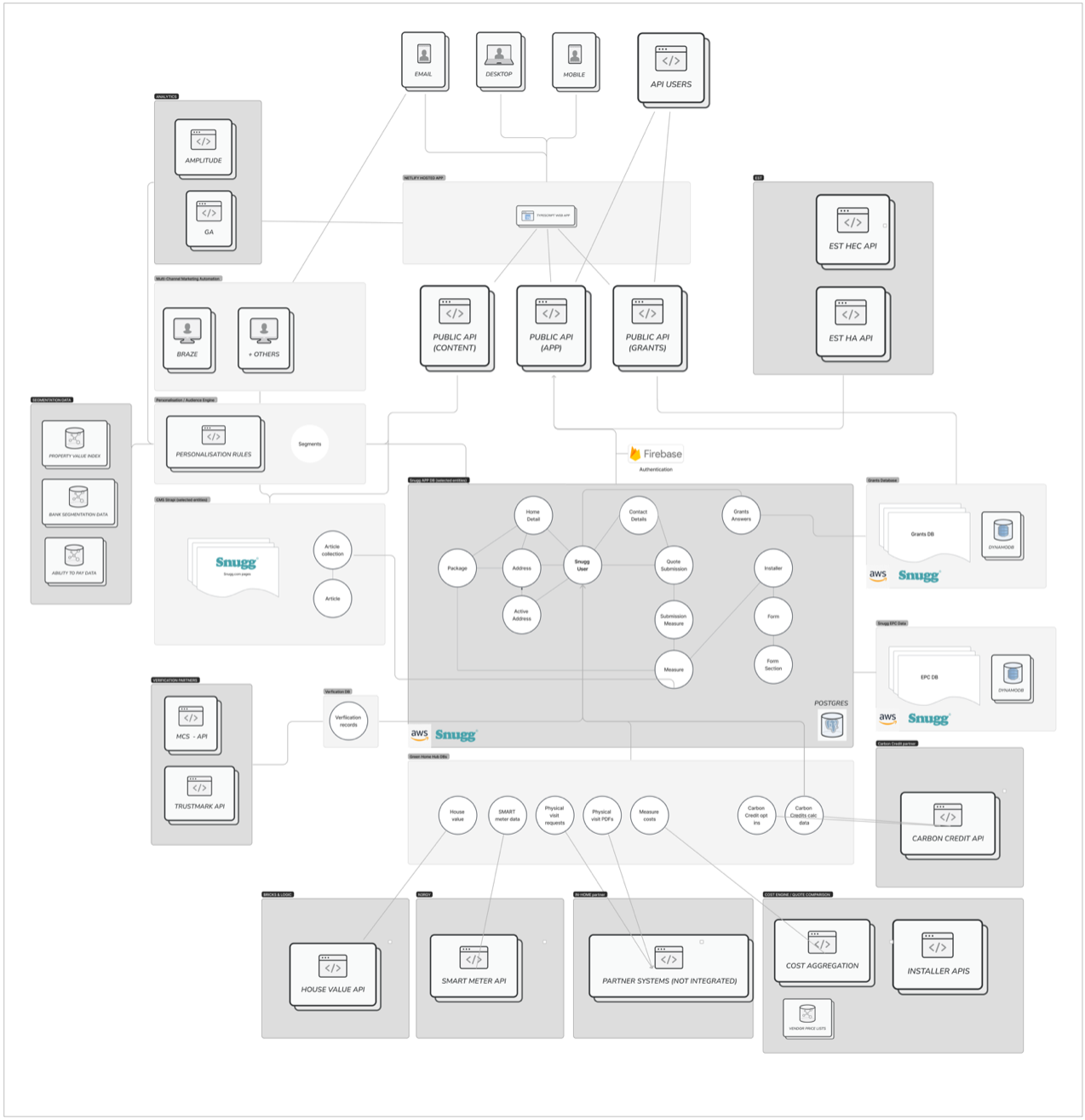

Figure 11 - High Level Architecture

The solution has been built using a common set of front-end components that can be white-labelled and re-used for different branded versions of the tool and for different business use cases, each from one code base. We have integrated with a number of external and internal APIs to cover energy modelling (via Energy Saving Trust APIs), the public EPC database, our own custom Grants API, Smart meter data services via N3RGY, verification services via MCS and Trustmark and our own custom built Carbon Cashback services.

We have leveraged Amazon Web Service (AWS)'s scalable and reliable infrastructure to process smart meter data for monitoring energy usage. Note that the method for calculating carbon credits (combining usage data and carbon intensity data) as a custom service is a Snugg innovation built through the GHH pilot.

Throughout the pilot, the deployed technological solutions demonstrated high reliability, with minimal disruptions to service. The absence of significant outages and the low number of reported bugs also highlighted the effectiveness of our implementation. System performance was monitored and evaluated using metrics such as uptime and error logging. This, combined with end-user feedback confirmed that the system met the operational demands of the Pilot Phase.

4.2 Challenges Encountered

A primary challenge involved the quality of data retrieved from smart meters. The usage data frequently contained gaps and inconsistencies, which required additional handling to ensure system reliability. Custom error-handling logic and gap-filling algorithms were developed to address the usage gaps (i.e. programmatic ways to estimate what the usage is likely to have been for any missing readings), allowing the system to process incomplete datasets to be usable for visualisation and carbon credits. This challenge underscored the need for robust data validation pipelines and adaptive data handling strategies in systems reliant on external hardware inputs.

4.3 Technology Process Learnings

The Pilot Phase provided critical insights into the technical design and operational requirements of scalable green finance systems. One lesson was the suitability of NoSQL[7] databases, such as AWS DynamoDB, over traditional relational databases for handling high-volume, time-series data like smart meter readings. The system demonstrated that NoSQL technologies enable efficient storage and retrieval of large, dynamic datasets while maintaining high throughput and low latency.

These findings will inform future design considerations, particularly for systems requiring scalability and real-time data processing capabilities. Note that our core customer systems

[7] The term NoSQL, short for “not only SQL,” refers to non-relational databases that store data in a non-tabular format, rather than in rule-based, relational tables as is the case with relational databases.

continue to use relational databases (specifically PostgreSQL on AWS RDS), i.e. we use the appropriate technology depending on the specific use case.

4.4 Future Technological Enhancements

To build on the current implementation, Snugg is exploring the potential of machine learning technologies available within AWS SageMaker. Specific areas under investigation include:

- **Customer Segmentation:** Using machine learning models to identify and segment customer groups based on energy usage patterns and preferences. This capability could enhance targeted product offerings and optimise customer engagement strategies.
- **Smart Meter Gap Filling via Machine Learning:** Developing algorithms to improve gap-filling methodologies for smart meter data, enabling more accurate analytics and reporting where incomplete or inconsistent data persists.

These enhancements could further improve system robustness, adaptability, and customer insights. We have already started on the first customer segmentation use case using third party data sources to predict how likely an individual is to invest in a specific measure, allowing us to prioritise presentation of that measure in the user interface (UI) or via email nudges. The plan is to expand on this concept to include more measures allowing for more targeted journeys and higher adoption rates for those measures. Skills gained from this Sagemaker work should help us gain the skillset required for additional machine learning scenarios (e.g. smart meter gap filling, or other predictive modelling use cases).

The focus remains on using the right tech for the task while ensuring that the overall platform continues to meet the high standards of reliability and performance established during the pilot.

5. Integration of Design or Process Innovations

5.1 User-Centric Design Methods Utilised During the Pilot

The development of the GHH has embraced several modern approaches to digital product development, outlined in the following sections.

Throughout the project, all features designed for the GHH were created using user-centric design methods, from initial idea conception through to prototyping and build. The design process was guided by the *Double Diamond* approach, a user-centric design model developed by the British Design Council, which was employed across various key features, including the Finance Finder.

- **Understanding the Problem (First Diamond):** In the first phase of the design process, we focused on clearly identifying the problem through user surveys and interviews with industry experts who directly interact with users. This helped refine the design brief and led to a deep understanding of user needs. We used empathy mapping to identify key pain points and the Jobs to be Done framework to ensure we were solving the right problems for homeowners. For instance, we discovered that homeowners generally had a negative perception of taking on loans, unaware that low monthly repayments could be at least partially offset by the savings from energy bill reductions.
- **Ideation and Iterative Design (Second Diamond):** The second phase of the Double Diamond involved generating potential solutions and testing them with real users. We conducted several user interviews to gain insights into user perspectives, alongside prototypes that users could interact with to perform specific tasks. For the Finance Finder feature, we went through five design iterations to fine-tune the tool. This process involved refining the page hierarchy, adjusting design elements, and revising the copy to ensure the tool was as useful as possible to the widest audience.
- **Continuous Monitoring and Refinement:** Once features were built, we continued to monitor their use and gathered feedback from homeowners and industry experts. Based on ongoing research, we iterated designs to enhance functionality and user experience. Throughout the year, we carried out 59 user tests with 588 UK homeowner participants to ensure the final product met the evolving needs of users.

This approach ensured that the GHH's features were always aligned with user needs, preferences, and pain points, allowing for continuous refinement and improvement in the final product design. The GHH integrated multiple customisations and personalisation features to help homeowners navigate complex retrofit decisions in ways that felt directly relevant to their circumstances. Each feature aimed to reduce confusion, bolster user confidence, and encourage meaningful engagement.

Personalised Articles

As part of the GHH pilot development, Snugg implemented a content management system (CMS) to enable personalisation. This enabled the GHH to present relevant content to users dependent on attributes held by the GHH. For example, a user who has specified that they are motivated by reducing their carbon emissions would be shown content

related to heat pumps and other decarbonisation topics at various points during onboarding and when they reach the GHH dashboard. Meanwhile a user who expressed a motivation of reducing bills at low cost would be shown content on do-it-yourself insulation measures. Results of the testing of this feature are included in Figure 6 above.

Personalised Journeys

As well as presenting personalised content based on motivation, users are also provided a motivation-based plan of improvements. For example, if a user (potentially a landlord) specified that they had a particular interest in improving their EPC rating, we would present a set of improvements that are optimised (using the energy modelling API provided by EST) to improve EPC. We would also limit that package of recommendations to £10,000 in anticipation that UK landlord regulation might put a limit on the amount that needed to be spent by the landlord. Results of testing this feature are included in Figure 6 above.

A further iteration of this approach is our 'Next Best Measure' approach, which suggests the most relevant action to the user based on their property characteristics, their sociodemographic segment (from Experian) and other propensity variables. This will test the hypothesis that homeowners are more likely to act if presented with a single recommendation rather a lengthy plan of improvements at a high overall cost. An initial launch will take place in March 2025.

Personalised Communication

As part of our personalised communication strategy, we leverage user data to ensure that email campaigns and feature announcements are highly relevant to each recipient. When introducing a new feature or running a topical campaign, we first identify the most appropriate audience segments based on their motivations, specific measures, past interactions, and engagement patterns. For example, if we introduce an update to the Finance Finder, we prioritise users who have previously shown interest in financing options, expressed concerns about affordability, or are most likely to utilise financing based on the type of measure in their plan.

Once the communication is sent, we track key engagement metrics such as open rates, click-through rates, unsubscribe rates, registration rates and, most importantly, user action. We take a test-and-learn approach, continuously measuring performance and gathering insights to refine our product strategy. This ensures that each campaign not only delivers value in the short term but also informs future decisions, allowing us to improve engagement and effectiveness over time. Our analysis has consistently shown that personalised messaging significantly outperforms generic emails, driving higher engagement and real user action. By tailoring our messaging to individual needs and iterating based on data, we ensure our outreach remains effective, relevant, and valuable to homeowners.

5.2 Iterated Operational Processes

Several processes were introduced and refined to enhance how customer queries were managed. These aimed to create a more user-centric experience, reduce response times, and address user concerns effectively, aligning the platform with evolving customer needs.

Tracking and Logging Queries

A structured system was implemented to log and categorise queries, providing insights into recurring issues such as EPC data discrepancies, grant eligibility, and smart meter connectivity. Queries were categorised by type and frequency to monitor trends and identify common pain points. Insights from this tracking allowed for proactive technical fixes and improved service delivery.

Improved Query Handling Processes

Enhanced processes were introduced to address user challenges, such as:

- **EPC Data Updates**: Guidance on manually updating details while technical teams investigated discrepancies.
- **Smart Meter Connectivity**: Clear steps for locating GUID/EUI/MAC[8] or MPAN[9] numbers and escalating issues with utility providers.
- **Grant Eligibility**: Tailored advice on schemes like the Great British Insulation Scheme.
- **Plan Builder Updates**: Provides tailored FAQs and step-by-step guidance.

These efforts have significantly reduced repeat queries and boosted user confidence in the platform.

Observed Query Trends

Regular reporting facilitated continuous improvements in the support system. Monthly reports tracked query trends, satisfaction scores, and recurring technical challenges, enabling refinement of support processes and platform updates. The following query types were most common:

- **Heat Pump Tariff Concerns:** Users were confused about negative or minimal heat pump savings. Updates including the incorporation of heat pump-specific tariffs provided more accurate savings and clearer explanations of long-term benefits such as lower maintenance costs and reduced carbon emissions.

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[8] A GUID/EUI/MAC number is a set of 16 characters that uniquely identifies a user's in-home-display. This number is essential for a user to be able to connect their smart meter to the GHH. For the avoidance of doubt, GUID/EUI/MAC are the most common acronyms used by manufacturers when referencing the unique 16 characters.

[9] A Meter Point Administration Number (MPAN) is a unique 21-digit number that identifies a user's electricity supply point.

- **Heat Pump Data Entry Issues:** Users struggled to specify existing heat pumps when updating details on their property. We clarified that heat pumps should be captured by selecting ‘electric’ heating, albeit further refinement of this is needed.
- **EPC Data Accuracy Concerns:** Discrepancies in imported EPC data occasionally caused inappropriate recommendations. Users were guided to manually update details or verify EPC records. We are actively improving accuracy and implementing monthly updates from data providers.
- **Grant Eligibility and Applicability:** Users sought clarification on eligibility for grants like GBIS and the Boiler Upgrade Scheme (BUS), particularly for listed buildings. Tailored guidance improved confidence but underscored the importance of personalisation. This trend highlights the complexity of the industry and how navigating the user journey can often be challenging for individuals.
- **Smart Meter Connection Issues:** Users faced challenges in connecting smart meters due to incomplete national data. Clear troubleshooting steps and escalation to utility providers addressed most concerns, though systemic limitations remain.

Impact of Customer Support Efforts

The structured logging and tracking processes ensured that recurring issues were quickly identified and addressed. Providing detailed guidance and actionable solutions reassured users that their concerns were taken seriously and reassured confidence in Snugg. Insights from user queries directly influenced updates to platform features, ensuring they better aligned with user needs.

The introduction and refinement of customer support processes during the Pilot Phase proved vital in addressing user concerns effectively. By leveraging query trends and continuously improving workflows, the platform has become more responsive and user-centric, laying a strong foundation for future growth and user satisfaction.

6. Pilot Partnership Learnings

6.1 Existing and new partnerships

Since the end of the Discovery Phase, the following partnerships have been furthered and enhanced:

- **TSB:** we have been partnered with TSB since June 2023. Throughout the pilot, the bank has been referring their customers to a Snugg-branded version of the GHH through multiple routes including a link from the TSB banking app.
- **Scottish Building Society:** we have been partnered with Scottish Building Society since June 2023. The bank referred their customers to a Snugg-branded version of the GHH via their website during the Pilot Phase.
- **EDF**: GHH users in England and Wales that have an air source heat pump or solar package in their improvement plans can request a referral to EDF. Users that qualify for GBIS funding can also request a referral to EDF.
- **Scottish Power:** GHH users in Scotland that have an air source heat pump or solar package their improvement plans can request a referral to Scottish Power.
- **Heat Save Scotland:** GHH users in central Scotland can request a referral to HeatSave Scotland for a range of energy efficiency, renewable energy and green heating measures.
- **Trustmark:** through linking to the Trustmark verification API, GHH users are able to import Trustmark verification data into the GHH.
- **MCS:** we have successfully integrated with MCS' verification API and are continuing to work together to develop improvements which would help satisfy the requirements of lenders in the retrofit space.
- **Bricks and Logic:** we worked with Bricks and Logic during the GHFA Discovery Phase to build a prototype calculation of the impact of retrofit on property price. We have developed that model further during the Pilot Phase to improve our approach to estimating the impact.

In addition to these partnerships, Snugg created the following new partnerships which included Scroll Finance, Sunsave and Perenna, who each also ran their own independent GHFA projects:

- **Scroll Finance:** Scroll is one of two finance partners formally engaged in our GHFA project. GHH customers that are interested in funding their retrofit through a mortgage have the option to click through to Scroll's Green Home Equity Loan product.
- **Perenna:** Perenna is the other finance partner to be formally engaged within the GHH pilot. GHH customers that are interested in funding their retrofit through a mortgage also have the option to click through to Perenna's long-term fixed rate mortgage with a retrofit discount product.

- **Progressive Building Society:** Snugg partnered with Progressive Building Society in September 2023. The bank referred their customers to a Snugg-branded version of the GHH via their website during the pilot.
- **NatWest:** Snugg partnered with NatWest in October 2023, utilising the GHH Grant Finder functionality via an API. This API plugs into NatWest's Home Energy Hub, enabling NatWest customers to understand which grants they are eligible for.
- **Which?:** Snugg has developed a Which?- branded version of the GHH for Which? customers. This was successfully piloted during March/April 2024 and launched to the public in October 2024.
- **Yorkshire Building Society:** Since December 2024, Snugg have provided a Snugg-branded version of the GHH to Yorkshire Building Society. This is accessible through their website and will be promoted more directly in 2025 Q1.
- **Sunsave:** Snugg partnered with Sunsave in May 2024. We have integrated a cost estimation tool into the GHH, which includes the monthly cost of obtaining solar panels through Sunsave's innovative financing proposition (Sunsave Plus).
- **Heat Geek:** Snugg partnered with Heat Geek in May 2024. For GHH users that are interested in a heat pump, we offer the option of a referral to Heat Geek's digital journey.
- **HDG/Countrywide and Enable:** Snugg partnered with HDG in July 2024. HDG deliver the physical survey service that can be requested from the GHH. Note that HDG are part of the Countrywide Group, covering Scotland. Enable are a subcontractor of HDG, engaging directly with Snugg for this pilot.

It is important to note that these partnerships include both distribution arrangements whereby the partner refers its customers to the GHH and supply arrangements whereby the partner is delivering a service as part of the GHH. Figure 12 below shows which aspects of the GHH are available via each distribution partner:

Pillar	Work Package / feature		Delivery partners	Which?	TSB	NatWest	Yorkshire BS	Scottish BS	Progressive BS	Direct/other
A	A1	Personalised content		•	•		•	•	•	•
	A2	Personalised journeys		•	•		•	•	•	•
	A3	Personalised messages			•			•	•	•
B	B1	Cost estimation	Heat Geek, SunSave		•			•	•	•
	B2	Physical survey	HDG/Countrywide/Enable	•	•			•	•	•
	B3	Quote entry			•		•	•	•	•
	B4	Quote/estimate comparison			•		•	•	•	•
C	C1	Grants wizard		•	•	•	•	•	•	•
	C2	House price impact	Bricks and Logic					•		•
	C3	Finance Finder	Scroll, Perenna	•			•	•	•	•
	C4	Financial product integration	Scroll, Perenna, Sunsave							•
D	D1	Verification	Trustmark, MCS		•		•	•	•	•
	D2	Smart meter connection	N3rgy		•			•	•	•
	D3	Smart meter visualisation	N3rgy		•			•	•	•
	D4	Carbon Cashback	Earthood, Verra							•

Figure 12 - Distribution Partners

Note that this mapping is continuously evolving as we launch new functionality and build new partnerships. We are also in discussions with several partners regarding the pilot of our Carbon Cashback solution.

6.2 Partnership Benefits

These partnerships have been central to the success of the GHH during the Pilot Phase, notably:

- Distribution partnerships with TSB and Which?, along with organic traffic through our www.snugg.com site, have introduced the majority of users to test and refine GHH features. Our success in attracting users through partnerships is tracked through monthly meetings with each partner.
- Partnerships with multiple installers, including utilities, have given us a route to deliver installations into users' homes. The success of this is tracked through monthly meetings with each installer.
- Other partnerships have provided market-leading capability to the GHH, removing the requirement for Snugg to 'reinvent the wheel'. This includes N3rgy's smart meter data service, verification services from Trustmark and MCS and Bricks and Logic's unique modelling of house value impact.

7. Governance Frameworks

7.1 Internal Government Structures

The development and deployment of the GHH was managed using an iterative process, guided by defined governance frameworks and agile ceremonies to ensure high-quality outcomes.

The work was conducted in sprints, with associated ceremonies to manage progress and maintain alignment across teams. These included:

- **Analysis Sprints:** Focused on defining requirements and understanding user needs. Ceremonies included Sprint Planning and Sprint Review.
- **Development Sprints:** Adopted a SCRUM-style development approach (see below), including ceremonies such as Sprint Planning, Sprint Demo, and Sprint Retrospective into our workflow ensure continuous improvement and team alignment.

Analysis sprints

To ensure that features were well-defined, aligned with company goals, and feasible for development, we followed a structured analysis and development process with defined stages. Each stage involved rigorous planning and collaboration to optimise outcomes. Figure 13 below provides detail of the process within each step.

Stage	Process	Typical timescale
Initiation	• Feature pitched and accepted by the Leadership Team. • Proposal includes the goals for the feature, a feature description, alignment of the feature with company goals, objectives, scope of analysis, required resources and estimated timeframe.	1–2 days
Research & Design	• Business analysis to create detailed specifications. • Design brief prepared if applicable. • User testing or customer discovery activities conducted to gather insights. • Dependencies, such as vendor input, confirmed. • Confidence in the feature's ability to improve company goals and metrics assessed. • Feature go/no-go decision.	5+ days
Development Feasibility	• High-fidelity designs prepared. • Initial refinements were carried out. • Feasibility of development evaluated.	3–5 days
Dev Ready / Analysis Done	• Jira tickets prepared. • Launch instances defined and agreed. • Tracking analytics defined. • Development estimates finalised.	1-2 days

Figure 13 – Analysis and development process

To govern the above process, analysis and design sprint reviews were held every two weeks, providing an opportunity for the team to discuss progress, identify any blockers, and adjust priorities as needed. This regular check-in helped ensure that potential issues were addressed promptly, keeping the project on schedule.

Development sprints

The SCRUM-Style development approach utilised the following stages to ensure rigorous governance and quality control:

- **In Development:** Engineers wrote clean, scalable, and reusable code in accordance with best engineering practices and requirements defined during the analysis sprint.
- **PR Review:** Code was peer-reviewed prior to merging into the user acceptance testing (UAT) codebase, ensuring quality and alignment with requirements.
- **Design Sign-Off:** The product designer verified that the front-end implementation matched approved designs, maintaining consistency and user experience standards.
- **Quality Assurance (QA) Testing:** Code and features underwent rigorous quality assurance testing to identify and address any issues before deployment.

Once all governance checks were completed, features were released into production, ensuring they met the necessary standards of quality and functionality. This structured approach ensured that development was consistent, efficient, and aligned with user needs. It also minimised the risk of errors and misalignment, ensuring high-quality outcomes for the end product.

The product owner played a key role in managing development capacity, ensuring that resources were effectively allocated and that the team could meet milestones without being overburdened. This helped prevent bottlenecks and allowed for continuous progress. Additionally, the project manager maintained a risk log and took ownership of follow-ups to ensure risks were identified early and mitigated. Change requests were raised and managed as needed, ensuring that any deviations from the original scope were handled with minimal disruption to the overall delivery.

By focusing on these governance mechanisms, we were able to stay on track and manage potential challenges, ensuring the project's overall delivery was not impacted.

Risk management

The Compliance Manager was involved in project meetings to identify potential risks from the work that was being undertaken. They would then attend appropriate project meetings and discussions to ensure that a compliance review was undertaken when required, with appropriate advice being provided. Finally, from a project perspective, the Compliance Manager was required to approve releases where their input had been required.

In addition, and as an ongoing measure, Snugg has an extensive Risk and Control Framework, supported by numerous controls which are monitored on a periodic basis. These controls are also reviewed to ensure they remain fit for purpose based on the products and service being offered by the firm. Each control is associated with a risk,

categorised as Operational, Financial, Regulatory, External, etc. The Compliance Manager ensured the risk framework was compliant, prioritised and kept up to date.

7.2 Lessons Learned from Governance

The Pilot Phase of the GHH provided valuable insights into governance structures, leading to improvements that have already been implemented to enhance collaboration, streamline decision-making, and improve overall efficiency. These lessons have strengthened our approach and will continue to shape how we operate:

- **Enhancing role clarity to maximise efficiency:** One key takeaway from the pilot was the need for clearer delineation of roles and responsibilities. The GHH's broad scope brought together experts from multiple disciplines, each contributing valuable insights. At times, overlapping areas of expertise made knowledge-sharing across different pillars more dynamic but also required more structured coordination.

  How we adapted: We have now established clearer role definitions and structured collaboration frameworks to ensure efficiency while still encouraging cross-functional knowledge-sharing. This has helped improve accountability, reduce bottlenecks, and enhance decision-making across workstreams.

- **Streamlining the approvals process for faster decision-making:** With a fast-moving product, identifying the right person to approve certain changes—particularly design updates—occasionally required additional coordination. Ensuring that key stakeholders were involved at the right time helped maintain quality and also highlighted opportunities to refine the decision-making framework.

  ***How we adapted*:** We introduced a more structured approvals process, allowing minor changes to be actioned more swiftly while ensuring that major decisions were escalated efficiently. This has reduced unnecessary delays while maintaining high standards for product quality and alignment with strategic goals.

- **Strengthening analysis sprint goals for improved planning:** The analysis sprints were instrumental in shaping development priorities. However, when goals shifted due to evolving requirements, it occasionally impacted development sprint planning and resource allocation.

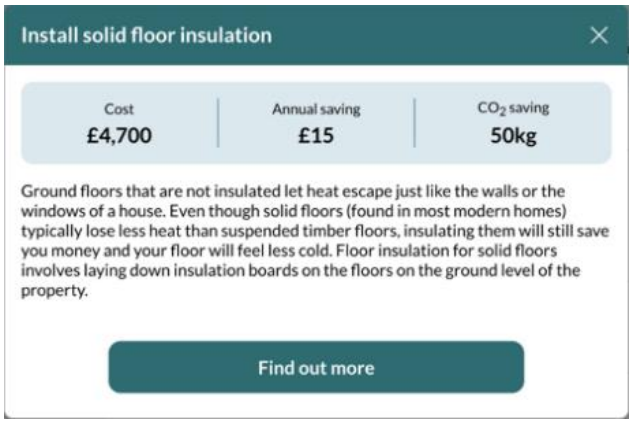
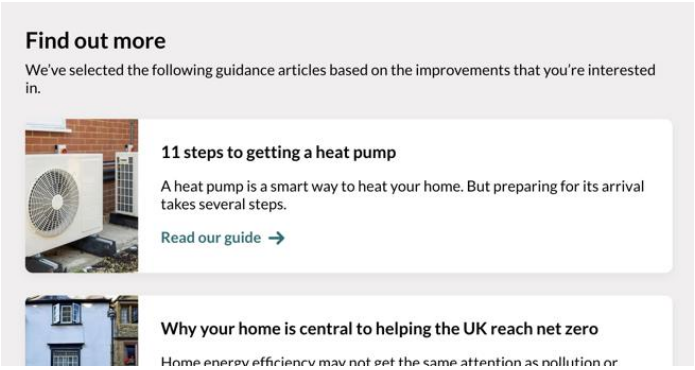
  How we adapted: We have refined our approach to analysis sprints, ensuring that goals are now more actionable, clearly defined, and better aligned with development priorities. This has led to improved visibility, better planning, and stronger alignment between analysis and development teams.

By taking these learnings from the pilot and actively refining our processes, we have already enhanced efficiency, improved collaboration, and strengthened decision-making within Snugg. These improvements will continue to evolve as we scale, ensuring that future product and service launches benefit from a well-structured and highly effective governance approach.

8. Advice and Guidance utilised throughout the Pilot Phase

8.1 Retrofit Advice, Guidance and Educational Resources

The pilot incorporated a variety of resources and tools designed to educate and guide users through the customer journey, helping them understand the benefits of retrofitting their homes. These resources targeted different stages of the user journey, from research to decision-making, and were tailored to individual needs. The various approaches used are shown in Figure 14:

Approach	Example
Plan Builder • Allows users to understand the cost and benefits of specific improvements tailored to their homes. • Advice included in modals[10] describing each improvement measure, with links to additional resources for deeper insights. • The 'Find out more' button then links through to Energy Savings Trust or Which? content (e.g. a guide to insulation methods etc.), depending on the partner instance of the GHH.	
Personalised Articles • Articles (accessed from GHH directly or via email nudges) for users in progressing through the research and development stages of their retrofit journey. • Includes articles like "11 Steps to Getting a Heat Pump", providing actionable and targeted advice. • See Figure 6 and section 5.1 for further details and insights from our personalised communication approach.	

[10] Modal: a pop-up window or overlay that appears on top of an app's main content, requiring user interaction before they can continue using the app

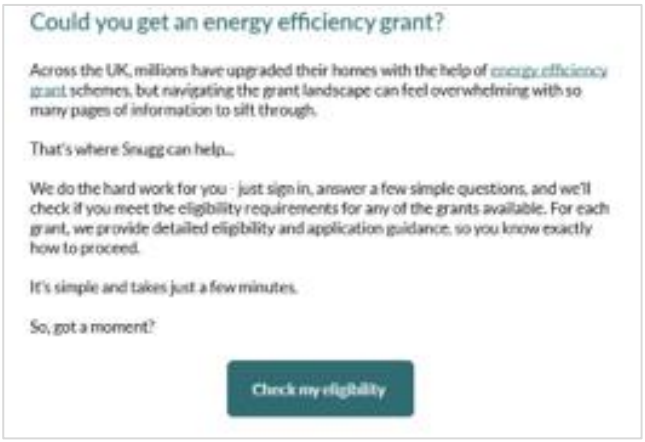
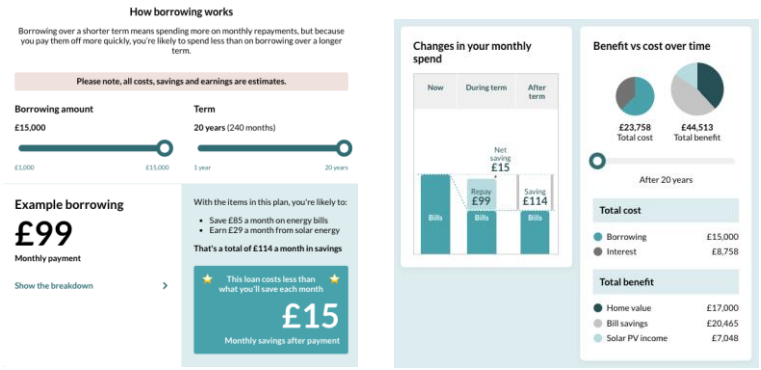
Nudge Emails • Timely, targeted updates to users, keeping them informed about energy efficiency news and offering education at the right moments. • Emails were personalised based on user preferences and progress, helping to maintain engagement and support decision-making. • See Figure 6 and section 5.1 for further details and insights from our personalised communication approach.	

Figure 14 – Educational approaches

Looking forward, we are considering alternative formats, such as videos, which could make the content more engaging and accessible, particularly for users who prefer visual learning.

8.2 Financial Guidance and Education

Alongside the guidance on retrofit detailed in section 8.1 above, the GHH includes an innovative Finance Finder feature, which educates users on borrowing through the 'How to Borrow' tool, and on the variety of relevant financial products through the 'Ways to Borrow' tool". Shown in Figure 15.

Approach	Examples
Finance Finder – 'How to Borrow' tool This tool provided users with financial education by simulating borrowing scenarios, helping them understand repayment options and durations. Clear, FCA compliant explanations were provided to ensure users understood their choices.	

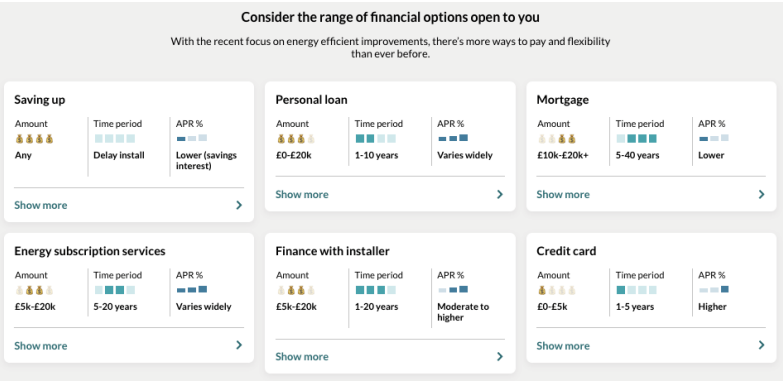
Finance Finder – 'Ways to Pay' tool This tool highlighted the pros and cons of various funding products in an unbiased manner. It helped users compare options and make informed decisions about financing their retrofits.	

Figure 15 – Example of finance Finder – 'How to Borrow' and 'Ways to pay' tools

8.3 Customer Lessons Learned

The pilot provided valuable insights into how customers engage with advice and guidance, highlighting several areas for improvement to enhance clarity and effectiveness:

- **Personalisation drives engagement but needs refinement:** Personalised articles and journeys were well-received and encouraged users to return to the platform. We anticipate that over time this personalisation will drive quote or survey requests with the GHH (note that users often act outside of the GHH).
- **Managing customer expectations around costs:** The Plan Builder was highly effective in educating users about the costs and benefits of retrofits, fulfilling an important role in setting expectations. User feedback suggests that a multi-improvement plan can be daunting. We are exploring approaches to make the plan feel more actionable to users, such as identifying a 'Next Best Measure' for each user, and improving the actual (and perceived) payback on any incurred cost.
- **Balancing transparency and compliance:** Customer feedback highlighted the need for clear and transparent advice, particularly when it came to financial and legal aspects of retrofitting. Challenges such as presenting subscription costs or not presenting house value impact in certain instances demonstrated the importance of balancing user-friendly content with commercial and compliance requirements that can often be off-putting to a user. Ensuring clarity while adhering to regulation will remain a priority for future guidance.

These lessons underline the need for more actionable, engaging, and accessible content that aligns closely with user motivations and barriers. By combining personalised journeys with diverse content formats and expanding the channels for engagement, future iterations of the GHH can provide even clearer and more effective guidance, empowering users to take confident and informed steps in their retrofit journey.

9. Assessor and Installer Integration

9.1 Role of Assessors and Installers

As explained in section 6.1 above, the GHH is supported by a broad range of organisations, including several that provide assessment and installation services. Fees are charged by Snugg for these referrals, typically on a 'commission on installation' basis, though in some cases as a referral fee. These referrals can be grouped as follows:

- **Installers:** Installation services are provided by EDF, Scottish Power, Heat Save Scotland, Sunsave and Heat Geek. These installers collectively provide installation of heat pumps, solar and a selection of energy efficiency measures.
- **Assessors:** In-house assessment services are provided by HDG (part of Countrywide Group) and Enable Services.

These partnerships are largely focused on providing installations within the 'able to pay' market, i.e. for homeowners outside of the Energy Company Obligation (ECO4), GBIS and local grant schemes. However, the GHH does offer eligible customers a referral to the GBIS team that is operated by EDF.

Additionally, GHH users are given the option to click through to the installer directories of Trustmark, MCS and the trusted trader network within the Which?- branded service. These referrals are provided on a non-commercial basis.

9.2 Customer Journeys

The different journeys that are offered to GHH users are shown in Figure 16, cross-referenced to relevant GHH features.

Journey		Relevant GHH features (see Figure 6)
Assessment referral	• Customers can request a physical assessment, similar to a retrofit assessment, including a tailored report, an occupancy assessment, a condition report and an Energy Performance Report (EPR). • Details captured in the GHH (motivation, property characteristics etc.) are passed to the assessor to ensure a smooth referral. • By clicking on icons within the tailored report, users can add recommended improvements into their Snugg plan. *Note:* this service was piloted with Which? users in 2024 and is now available to all Which? and Snugg users.	B2 – physical survey

Installer Referral	• After reviewing their recommended improvement plan, users can request a referral to a selection of installers for a range of improvement types. • In some cases, this journey includes a number of pre-qualification questions to ensure that 'warm leads' are being passed to the installer.	(pre-existing feature)
Digital Estimate	• Within the GHH Plan Builder, users are initially shown indicative costs for each improvement that are provided by the Energy Savings Trust. • For certain improvement types (currently solar in England), users can answer two additional questions to receive an immediate, accurate estimate from an installer, before being given the option of a referral as per above.	B1 – cost refinement
Quote upload and comparison	• Users can manually key in quotes that they have received for improvements, including details of the improvements quoted for. • These quotes can be viewed alongside the EST-provided indicative costs and any digital estimates that have been requested	B3 – quote upload B4 – quote comparison

Figure 16 – Assessment and Installation Journeys

9.3 Challenges and lessons learned

A number of challenges were encountered during the pilot with regard to assessor and installer management:

- **Coverage:** It has been a challenge to identify a single company that can serve in-home assessments throughout the entire UK. Snugg has formed additional partnerships to ensure adequate coverage.
- **Tracking user action:** A recent Snugg survey of over 180 existing users showed that many users chose to find an installer outside of the GHH, having used it to build a plan and learn more about the recommended improvements. 23% of respondents had started making improvements, and 63% intended to, however only 12.5% had requested an installer quote within the GHH. To address this, and improve the completeness of end-to-end journey data, we are considering incentives (e.g. discounts) to users that click through to installers directly from the GHH.
- **Integration complexity:** Snugg have implemented a variety of different integration approaches with installers and assessors. This includes managed lead referrals, where following pre-qualification a data file is sent to the third party to feed into CRM systems, as well as more straightforward click-throughs to the installer's own digital journey. Whilst this creates inconsistency, it also enables us to learn about the relative effectiveness of different approaches.
- **Data sharing:** Referral of users to a third party entails the exchange of personal data, resulting in a regulatory requirement. Users were clearly informed about how their data would be used and the identity of installers who would have access to their data was disclosed. The context of each question (e.g. for pre-qualification) was explained in a

clear and concise manner. Data was transmitted securely using encrypted channels and access to homeowner data was restricted to authorised installers and Snugg personnel, in line with transparent data privacy policies.

- **Proactive Communication:** To address gaps in installer and assessor customer communications, Snugg ensured proactive communications with customers about potential delays or scheduling changes, keeping them informed throughout the entire process wherever possible.
- **Performance Monitoring:** We continuously monitored installer performance, including response times, customer satisfaction ratings, and adherence to schedules. This data helped us identify areas for process improvement and provide targeted support to underperforming installers.

10. Verification Processes & Quality Assurance

10.1 Verification functionality included with the GHH

The GHH includes a verification feature that enables our distribution partners (typically lenders) to obtain evidence that their customer has made a green improvement to their home. This data can then be passed to the lender alongside other insights and in line with agreed privacy and data sharing agreements.

The pilot used multiple verification methods to ensure quality and compliance:

- **MCS certification:** allowed homeowners to upload verification data to the GHH for completed installations (typically heat pumps and solar) via an API by inputting an MCS Certificate Number.
- **Trustmark:** homeowners can also upload Trustmark verification data to the GHH. This approach utilises the property's UPRN to import data via Trustmark's Property Checker and Funder API.
- **Manual upload:** For lenders not mandating MCS or Trustmark verification (in particular where the installation has not been lodged), homeowners can submit invoices or certificates.

These verification methods were designed to ensure quality assurance, prevent fraud, and streamline data sharing through automation. However, the approach is of reduced value where installers were not required by lenders to lodge their work with MCS or Trustmark, making manual uploads a necessary fallback. Manual uploads currently require a human review, are less rigorous than an MCS or Trustmark lodgement and are relatively inefficient for high volumes.

User experience played a central role in system design. Interfaces were iterated to enhance usability, ensuring that homeowners could easily navigate verification processes once implemented. Throughout the pilot, stakeholder collaboration with financial institutions and certifying bodies ensured that verification methods met market needs and can support the scaling of green finance solutions.

10.2 Key Lessons Learned

A flexible verification approach - incorporating APIs and manual uploads - was essential to accommodate various installation types. Proactive collaboration with industry stakeholders ensured the system was designed to meet financial institution expectations while minimising friction for future users. Balancing cost and robustness remained a key consideration, with self-certification recognised as a fallback solution requiring oversight. Ultimately, building a scalable and adaptable verification framework allows for a more resilient and efficient system, ensuring readiness for increased homeowner engagement with financial institutions who require robust verification processes to ensure proper deployment of green finance.

A key lesson to be learnt from the pilot is that without the mandatory lodgement of installations with Trustmark and MCS, the more time intensive and higher risk manual upload verification process will likely be required. The Trustmark and MCS APIs are only capable of being used at scale where installers are required to lodge installations with them. This is particularly challenging where financial institutions do not mandate homeowners to utilise installers who are Trustmark and/or MCS accredited and for installers to lodge those improvements. The lodgement of measures with certifying bodies carries cost implications for installers in the form of lodgement fees. As homeowners often lack the understanding of how lodgement with certifying bodies provides quality reassurance, installers often derive limited benefit by following these processes. Further intervention at the policy level is recommended to address this challenge to ensuring accurate, seamless and credible verification of installations for homeowners.

10.3 The Role of New Technologies in Enhancing Verification and Assurance

Emerging technologies are transforming verification processes by improving efficiency, scalability, and trust in green finance. Automation through APIs, such as those from Trustmark and MCS, streamlines verification by reducing manual errors and ensuring installers consistently lodge retrofit measures. Future MCS API enhancements enabling verification by UPRN or MPAN could enable more seamless end-to-end verification.

Further innovation is envisaged in the following areas:

- **Smart meter data**: smart meter analytics provides objective performance verification for high-impact measures like heat pumps and solar panels by tracking energy consumption changes. AI-powered models could enhance this further, detecting anomalies and refining verification for smaller interventions like insulation. Artificial intelligence and machine learning also have strong potential in verification, offering predictive energy savings analysis, fraud detection, and real-time performance insights. Our existing work on gap-filling in the smart meter data set provides a useful foundation for this.
- **Blockchain technology:** this has the potential to strengthen data integrity by creating an immutable record of installations, certifications, and performance, boosting lender and homeowner confidence while simplifying compliance reporting.

Together, these innovations improve efficiency by reducing manual workloads, enhance scalability to accommodate increased retrofit adoption, and ensure transparency through secure data tracking. By fostering confidence among homeowners, installers, and financial institutions, new technologies will be instrumental in scaling green finance solutions and accelerating the transition to sustainable housing. We are confident that in time the innovations set out above will play a role in improving the GHH.

11. Market Testing, Deployment and Distribution of Product/Service

11.1 Marketing Strategy

Snugg predominantly uses a Business-to-Business-to-Consumer (B2B2C) business model. We have focused on selling licenses of the GHH to mortgage lenders, to help them reduce the financed emissions from their mortgage book, to mitigate cost of living issues across their broader customer base and to provide a place to promote their green finance products. The key messaging has been 'simplifying the journey to more energy efficient and sustainable homes, at scale.'

Financial services (FS) partners can create their own version of Snugg, adding customisation to best support and advise their customers as well as ensuring that their risk and compliance teams are comfortable with the information provided to their customers, via the Snugg partnership. There are two branding options available:

- A Snugg branded solution with limited customisation and no integration to partner systems
- A white-label solution with more bespoke features, with the ability to integrate into partner ecosystems from launch or through iterative development.

Interestingly we are seeing that the majority of FS partners prefer to retain the Snugg branding, to minimise the reputational risk of providing customers with home energy efficiency advice when this isn't their area of expertise, potentially reducing exposure to compliance risks (see section 2.3 above).

Common areas of customisation include removing the house value impact feature, adapting the choice of installation partnerships and inserting information about their own green finance products within the pages of the tool that provide information about grants and finance options.

One of the benefits of the partnership model that particularly appeals to FS partners is our approach to data sharing; homeowners register directly with Snugg therefore minimising the need for a complex data sharing agreement with the new FS partner.

There are certain challenges with promoting the Snugg service to homeowners via financial institutions through the B2B2C model, due to the restrictions on marketing permissions. To date, our FS partners have marketed the Snugg solution to their customers via multiple channels such as:

- Linking out to Snugg from a section on their website; ordinarily a Mortgage or Sustainability 'Hub'.
- Promotion in the banking app and website i.e. banners and tiles. This generated particularly large volumes of referrals, albeit at lower registration rates given the broader range of customers reached.

- In-branch promotion and activities (e.g. digital screens & sustainability days).
- Events; both in-person and online.
- Customer / member newsletters.
- Social media campaigns.
- Blog content.
- Email campaigns e.g. lifecycle comms.
- Telephony advisors. This has proved very successful with distribution partners embedding Snugg referrals into customer conversations.
- Broker communications. This approach requires regular refreshing as typically brokers have limited capacity (and commercial incentive) to raise energy efficiency issues with customers.

A particular challenge in marketing the service to homeowners has been the need for FS partners to continue to promote the service themselves alongside other marketing priorities. Our experience has been that the FS partner needs to engage with customers regarding Snugg on an ongoing basis post-launch to achieve the optimal levels of user registrations and in turn user action conversions.

Further activity is required to insert a referral to the GHH at the key points that a lender engages with a mortgage customer. These key points are as follows:

- When customers take out a new mortgage or move into a new property.
- When receiving an annual mortgage statement.
- At product renewal.

We do have partners who plan to provide home energy efficiency advice to customers at these key points in the coming months, so we should have further learnings on the impact of this throughout 2025.

11.2 Distribution Channels

Throughout the pilot, we have attracted homeowners to the GHH via a combination of partnering (a B2B2C approach) as well as attracting users directly (direct-to-consumer, or D2C approach). The following sections describe our approach to each of these channels.

B2B2C

Our key method of acquiring and engaging with new users is by licensing the GHH to financial and other institutions. These institutions then offer the service to their homeowner customers. The main distribution channel for our B2B audience is sales-led with a blend of prospecting, relationship building and upselling to existing clients. Networking, attending events and thought leadership are our main engagement tools with this audience.

As discussed in section 11.1 above, our partners need to invest in ongoing marketing activities post launch to ensure continued user engagement and user action. Competing marketing priorities, resource and budget can be a constraint for our partners in this respect. However, the number of visits to GHH landing pages through the B2B2C channel increased by 370% in 2024 compared to 2023 (6,600 to 31,000).

D2C

A minority of GHH users are acquired directly, however, we do see a steady flow of users through organic search and 'word-of-mouth' recommendations. Sessions of direct website traffic also increased significantly in 2024 by 270% (10,000 to 37,000).

We invested in search engine optimisation (SEO) as part of the pilot to get users to test the product as well as gathering insights on what keywords and topics the UK homeowner market is interested in with regards to home energy efficiency. This enabled us to align our content and email communications accordingly.

Website traffic

We have seen a significant growth in user traffic over the GHH Pilot period, shown below:

Source	2023	2024	Year-over-Year Growth
All sources, including:	27,770	88,731	220%
- Organic search	8,441	17,113	103%
- SEO-branded	2,904	4,469	54%
- SEO non-branded	4,454	12,380	178%

Figure 17 – Website sessions by channel

In terms of the best performing blog posts from an SEO perspective, the following were the top 10 best performing pieces of content:

1. How to replace halogen lightbulbs with LED lights.
2. Common spray foam insulation problems and what to do about it.
3. Do solar panels work in winter?
4. How to improve the energy efficiency of listed buildings and conservation area homes.
5. How to insulate pipes around your home.
6. How to balance radiators yourself and save money.
7. How to bleed a radiator in under 1 minute.
8. Insulation – the Snugg guide.
9. What is an energy performance certificate?
10. Home energy efficiency grants – the Snugg guide.

In comparison to our partnership distribution channel, volumes of acquisition, user engagement and return on investment (ROI) is much lower, and therefore SEO is not a preferred marketing activity for the longer term.

11.3 Uptake and increase in engagement

Snugg uses both Google Analytics and Amplitude (product analytics) to track acquisition and engagement with the GHH. The key metrics we track to measure effectiveness are engagement, conversion to creating an account, and conversion to taking action such as requesting an installer quote or connecting a smart meter. As detailed above we saw increasing traffic throughout the year from SEO campaigns. However, SEO traffic has a lower conversion rate to account creation than other channels, with an average conversion rate of 3% compared to direct (4%) and referral (7%). Our best-converting traffic is that coming from our partners at 24%.

12. Market Penetration

12.1 Engaging Target Markets

From a direct to consumer (D2C) perspective our main channel for engaging with users is email marketing communications. If users subscribe to marketing email communications when they register, they will receive tailored communications.

Throughout the pilot, our email marketing strategy evolved from broad, generic communications such as monthly email newsletters (see Figure 18 below) to highly targeted, data-driven engagement strategies (see Figure 19 below).

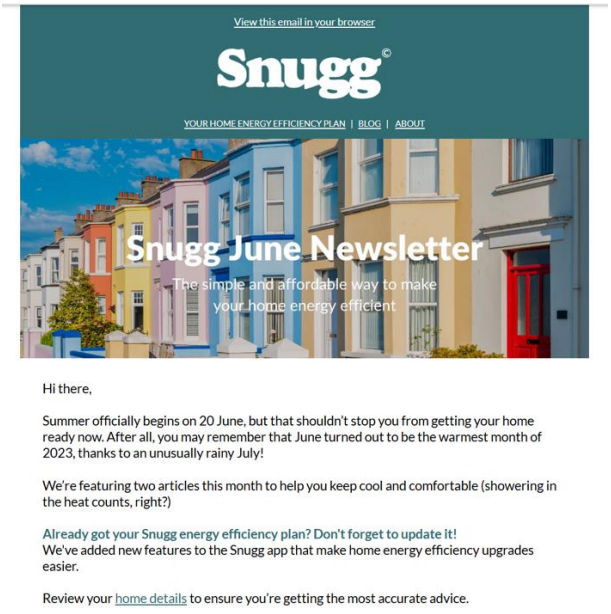


Figure 18 - Monthly Newsletter Example

Figure 19 - Email Campaign Example

This decision was made after comparing performance between personalised email campaigns and newsletters, as well as similar findings of higher engagement within the product due to personalisation. This shift to targeted campaigns has resulted in significant improvements in open rates, click-through rates, and user conversions. Figure 20 below shows the difference in performance between our general one size fits all email marketing campaigns and targeted email campaigns based on user motivations, behaviour and the content of a user's home energy efficiency plan.

	Personalised email campaigns	Generalised newsletter email campaigns	Industry benchmark
Average open rate	44.7%	36.7%	32.3%
Average click through rate	13.5%	7.2%	2.5%

Figure 20 - Customer Engagement

This data also highlights how high engagement is with our users compared to the industry benchmarks. Our average open rate is 12% higher than the industry benchmark and our average click through rate is 11% higher, demonstrating that our users are highly engaged with our offering, messaging and content.

As a further development following the GHH pilot, we are planning several initiatives to further improve this personalised approach:

- Mapping additional Experian user demographic data based on address details into our marketing automation software.
- Integrating user behaviour within the GHH, as well as user plans, within our marketing automation software.
- Integrating progressive profiling throughout the user journey. Progressive profiling is the practice of gradually collecting customer information over time through incremental interactions, rather than asking for all details up front.

We measure the success of our email campaigns through a variety of metrics, notably open rate and click through rate. Figure 21below sets out our average metrics during the pilot compared with industry benchmarks.

	Open rate	Click through rate
Snugg	45%	13.5%
Industry benchmarks:		
Architecture & construction	31%	2.9%
Real estate	35%	2.2%
Home & garden	36%	2.3%
Business & finance	31%	2.8%

Figure 21 - Pilot Metrics

13. Customer Sales – Success Metrics

13.1 Customer Segments

Our pilot to provide in-home assessments had a particularly high engagement, with 22% of pilot users requesting a home survey. The pilot users were selected based on the interest they had shown in related content. This demonstrated the impact of a highly engaged and carefully targeted audience. We have also seen that users in this pilot generally had larger and older homes than our main audience, demonstrating the value of a more personalised approach for more complex properties. As we roll out the in-home assessment option, we will be looking at ways to understand which users are most likely to benefit from this service so that we can further personalise the user journey.

13.2 Demographics & Customer Segments

Recent profiling of 12,500 households in our user base by Experian showed that users aged between 36 and 65 had the highest registration rate, with 58% of our registered users falling into this age bracket. Users that registered also had a higher household income, with 19% with a household income of £100k+. While we do not carry out marketing directly to acquire users, we can use these insights to help advise our partners as to which of their customers may be most likely to adopt the service.

In our user survey of over 180 GHH users, those in the mid age range brackets were more likely to be considering improving their home energy efficiency in order to increase comfort levels, and less likely to be motivated by environmental considerations. Likewise, those on lower incomes are more likely to be motivated by reducing energy bills. This indicates that different messaging and benefits can be used to acquire different demographics.

13.3 Availability of Finance & Impact on Sales

Since it was launched, around 6% of users have visited the Finance Finder from the dashboard. When exploring the finance options available, Mortgages were the most popular, with 68% of users who visited the ‘Ways to pay’ tool clicking on this option.

Traffic to the Finance Finder has been relatively low thus far, so we have not been able to observe a significant uplift in users taking action as a result of interacting with the tool. We have however seen that users engage with the tool have higher engagement and retention than those that don’t.

13.4 Primary Drivers of Sale Success

Grant eligibility impacts users requesting installation quotes, with just over half (51%) of the users that have requested a quote having eligibility for at least one grant in their plan. Only 43% of all users have a grant in their plan, so having a grant increases the

conversion rate to requesting a quote. Energy Company Obligation (ECO4) and Home Energy Scotland (HES) have the highest conversion rate to quote request, although they both have low eligibility rates with only 12% and 14% of users eligible for each grant respectively.

13.5 Key Barriers to Achieving Higher Sales

Cost remains the number one barrier to people carrying out work even after using the service. Our survey of GHH users showed that, after using the GHH, 86% had either started or intended to start making improvements, whereas just 14% said they did not intent to make improvements. The most common reason given for not making improvements was the cost and lack of grant funding. We believe that recent feature additions such as the ability to compare costs and receive more accurate estimates, as well as ongoing work to personalise the right actions and benefits will help overcome these blockers.

Another common reason given by survey respondents showed that lack of time and the need to prioritise other things has prevented them from acting. We continue to test different email communications to nurture users through their journey and address common barriers.

14. Customer and Behavioural Insights

14.1 Quantitative and Qualitative Research

Our product team carries out regular user testing and interviews throughout the design process via usertesting.com, a platform that gives us access to thousands of potential users. We have also used this platform to carry out quantitative and qualitative surveys of 200 UK homeowners that were not users of the GHH.

When testing with usertesting.com, we target pre-set user segments which have been determined through an evidence-based approach. These segments cover a broad range of approaches to home energy improvement: from testers who have an interest in a specific measure to those looking to learn what is possible, and more. The qualification questions that organise testers into these segments have broad acceptance criteria on categories such as gender, age and income. This approach ensures each segment contains a wide demographic range, allowing us to reach conclusions without excluding any particular group.

We carry out regular in-depth interviews with users to gather qualitative insight, and in December 2024 we conducted a quantitative and qualitative survey of our own userbase which received over 180 responses.

14.2 Customer Needs & Expectations

Feedback from users of the GHH is positive. Figure 22 below shows the results of a survey of over 180 GHH users.

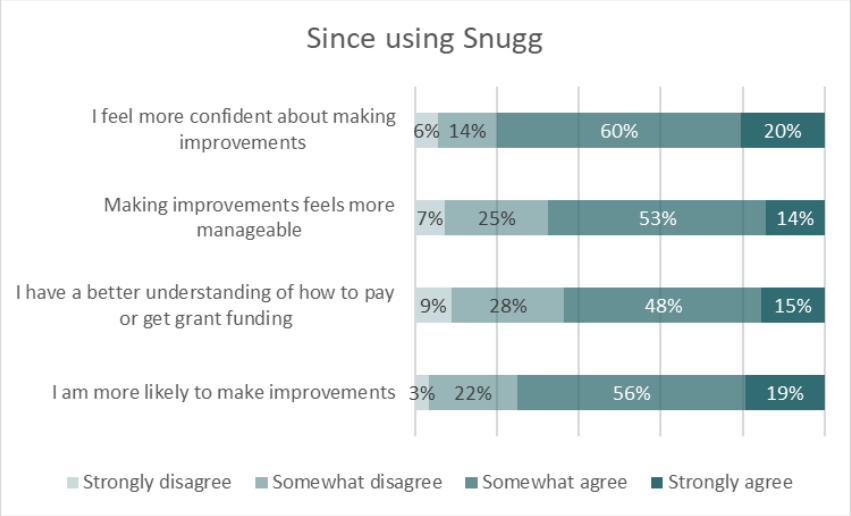


Figure 22 - Customer Needs & Expectations

While younger respondents were slightly more likely to agree that they felt ‘more confident about making improvements’, older respondents were more likely to agree that they were ‘more likely to make improvements’. It was also the case that younger respondents were

more likely to agree that they had ‘a better understanding of the costs of improvements’. This correlates with younger respondents having lower household incomes and the cost being a more significant barrier, as shown in Figure 23 below.

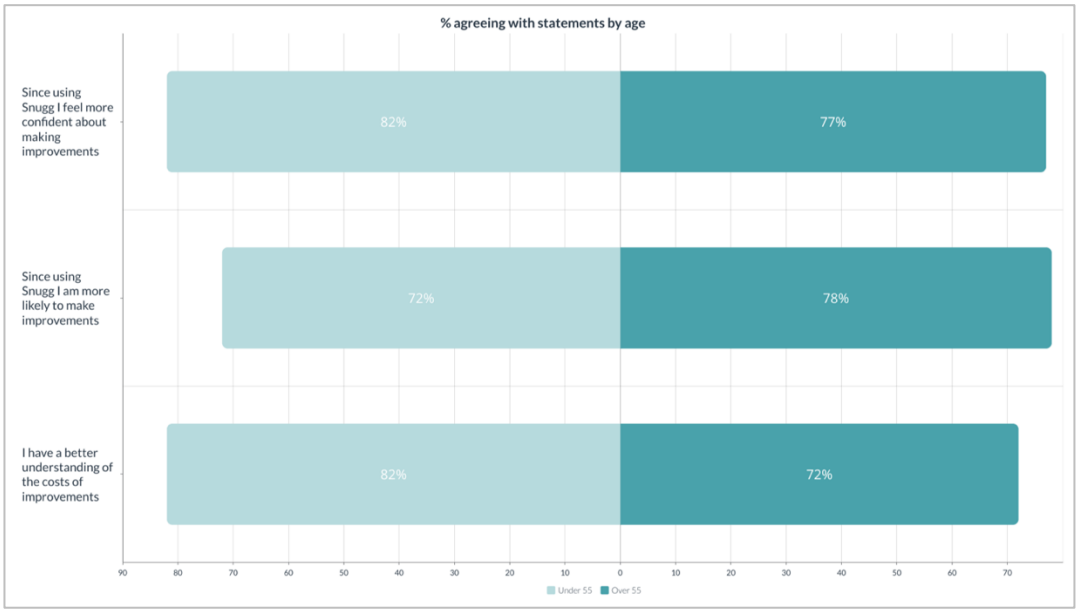


Figure 23 - Agreeing with Statements

We also asked how informed respondents felt about various factors prior to using the GHH, including ‘the grants that were available to them’. Of those who considered themselves ‘not very well informed’ or ‘not at all informed’, 46% agreed that since using the GHH they ‘had a better understanding of how to pay or get grant funding”. For respondents in Scotland this rose to 75%, where grant eligibility is much higher, compared to 40% in England and Wales. This suggests that the lack of understanding is due to the lack of availability rather than the GHH itself.

14.3 Customer Motivations

We have seen high conversion rates throughout the earlier stages of our customer journey, with an average conversion rate to account creation of 35%, and an onboarding completion rate (from account creation to reaching the dashboard) of 37%. A Snugg survey also highlighted that 23% of users have started to make changes to their home since using the GHH.

It is worth noting that we have seen a higher rate of quote requests from users in Scotland compared to the other regions of the UK. Grant eligibility is much higher in Scotland than other regions due to the far-reaching nature of the Home Energy Scotland grant. 79% of our users in Scotland have grant eligibility in their plans, compared to 43% in Wales, 38% in England and just 17% in Northern Ireland. 57% of those that have requested a quote in Scotland are eligible for a grant, compared to 40% in Wales and 38% in England, indicating that the availability of grant funding helps encourage users to act.

In our survey we asked users who did not intend to make improvements what would have to change in order for them to do so. Respondents expressed a need for more grants and financial assistance, suggesting that the current funding landscape is insufficient to encourage improvements.

14.4 Product/Service Engagement

In our user survey only 14% of users said they ‘did not intend to’ make improvements after using the GHH. 23% said they had ‘already made or started to make improvements’, with the remaining 63% saying they intended to. Of those 63%, 39% said they intended to start within 6 months to 1 year, while 48% said it would be more than a year. We know that the journey to making improvements is a long one and we are looking at more ways to nurture users through this journey with email messaging.

Of the users who said they did not intend to make improvements, the main barrier was the cost, cited by 28% of those respondents. This was followed by 16% saying they didn’t find the information provided by the GHH to be sufficiently helpful or new.

When comparing the motivations selected by users in creating accounts on the GHH, we see slightly higher rates of conversion by those that selected a specific product interest (solar PV or air source heat pumps) than those that selected ‘start smaller, feel warmer’ of ‘not sure’, but this increase is not statistically significant.

14.5 Customers Value of Proposition

Our survey asked users about their main reasons for potentially improving home energy efficiency. The most selected response was to ‘to save money on energy bills’, selected by 46% of respondents. Those respondents were more likely to agree that they now ‘have a better understanding of the potential savings’, with 63% saying they ‘somewhat agreed’ and 22% saying they ‘strongly agreed’. This suggests the GHH was able to help with this goal.

The most engaged with feature in the GHH has been our Grants Checker, with 31% of users engaging with the feature after completing onboarding. Using the feature has a statistically significant uplift on users requesting installer quotes.

14.6 Barriers & Challenges Customers Faced

All our research showed that the number one barrier for users carrying out work is cost. Qualitative research revealed that users are actively calculating payback periods and return on investment when considering retrofit work, and that they expect to see a return within a short timeframe. Within this we see different user groups motivated by different benefits, for example younger respondents (under the age of 40) were more likely to say they would consider spending more on retrofit if it would increase the value of their property.

14.7 Lessons Learned from Pain Points

Our survey revealed demographic differences in barriers to adoption. Cost was the primary concern across all age groups, but younger respondents (25-44) and lower-income households were more likely to cite financing availability as a barrier. This group, often with mortgages, were more likely to consider financing, credit cards, or loans than others, highlighting a gap between willingness and access/awareness. These users could benefit from education around green finance products, and potentially savings products that will allow them to build savings.

Higher-income respondents were more concerned about disruption and more likely to use savings. Older households were more likely to find available information difficult to understand. This group would benefit from education around the types of measures and the retrofit process to help increase confidence.

These insights emphasise the need for tailored solutions and targeted messaging to address different concerns across demographics. Alongside our ‘Next Best Measure’ initiative we intend to tailor the communication strategies both within the product and through ongoing marketing to better address the specific pain points of different user types.

We can also use this insight to help our banking partners focus on relevant messaging to different demographics when directing them to the service.

15. Integration of Government Grants

15.1 Government Grant Sources for Customers

The ‘Grant Checker’ feature is built into the GHH journey. The initial data collection for this is built into the onboarding journey. Once onboarded, the customer will be presented with a list of grants for which they are potentially eligible. This list is based on an assessment of:

- The measures in a user’s plan.
- Where they are located.
- Low-income status / in receipt of benefits.
- Council tax band.
- EPC band.

The main grants in the UK are covered in the assessment:

- Great British Insulation Scheme.
- Boiler Upgrade Scheme.
- Home Upgrade Grant.
- Energy Company Obligation (ECO4).
- Home Energy Scotland Grant and Loan.
- Nest Scheme.
- Affordable Warmth Scheme Northern Ireland.

Users are offered the opportunity to sign up to updates on grants to keep them informed of any new grants or changes to grant schemes.

15.2 Issues, Challenges & Barriers to Grants

In general, the grants landscape in the UK is complicated and hard for users to understand. This is made worse for consumers by the proliferation of lead generating companies competing to try and attract Energy Company Obligation (ECO4) and Home Upgrade Grant (HUG2) customers, using marketing tactics rather than providing a consumer advice service. Snugg has built grants into the heart of the consumer journey, trying to simplify the process for users, and at the same time providing them with confidence.

There are specific challenges relating to each of the grants, including:

- **Great British Insulation Scheme (GBIS):** There is no accessible UK council tax band lookup functionality to help assess a user's eligibility, Snugg had to build this functionality. Also, the accessibility of this grant and eligibility differs across the major providers and the additional costs of having to carry this out under PAS2035 means that providers are targeting bigger properties.
- **Home Upgrade Grant (HUG2):** The list of Local Authority providers for HUG2 was difficult to access, and not easy to build into code.
- **Home Energy Scotland (HES):** Homeowners cannot simply complete an application form for this grant and instead are required to go through a lengthy customer journey, much of which repeats the advice provided within the GHH.

15.3 Grant Conditions Influencing Product Positioning

The Snugg journey is designed around grants as a key component, with our 'Grants Finder' providing customers security and confidence. To maximise impact, we ensured grants were identified as early as possible in the journey rather than leaving them to be checked at the end. Significant design work was also carried out to display the value of grants in the right place. Given the complexity of the overall landscape, customers wanted reassurance that they are not missing out, and they appreciate being able to access information about grants even if they do not qualify. Grants can significantly impact financial viability, especially those targeting low-income households.

16. Commercial Viability

16.1 Long-Term Vision for the GHH

The GHH has the potential to generate material levels of revenue for both Snugg and the many partners involved. Broadly, these partner revenue streams can be categorised as follows:

- **Banks:** Banks continue to be our primary route to market for the distribution of the GHH. The principal revenue stream for banks is from the lending required to complete any retrofit. Reducing financed emissions on mortgage portfolios is also a substantial benefit to lenders and is likely to help sustain future revenues as regulation of those emissions increases in coming years.
- **Utilities:** Many large utilities have an established supply chain for the delivery of retrofit as part of existing grant schemes. This capability has more recently evolved into propositions for the 'able to pay' sector, with particular focus on heat pumps and solar. The GHH refers users to utilities to install these measures, generating revenue either directly from homeowners installing equipment or through commission paid by subcontracted installation services.
- **Other installers:** As well as utilities, the GHH also refers customers to specialist installation firms. These firms obtain revenue directly from homeowners who purchase installations.
- **Consumer bodies:** Typically, a consumer body will make revenue through referral commission from suppliers and lenders. There is also the potential to generate increased membership fees, either through increased loyalty from existing customers or from new customers attracted by the GHH solution.
- **Data providers:** The GHH sources data from multiple sources, including the Energy Savings Trust (EST) and N3rgy. These businesses will generate revenue through fixed and volume-driven licence fees.

The GHH generates revenue from the following sources:

- **Licence fees:** Snugg charge licence fees to businesses who use the GHH for their own customers (distribution partners), either on a Snugg-branded or white-labelled basis.
- **Bespoke development:** Where a distribution partner requires bespoke development to tailor the GHH to their specific needs, we make a charge.
- **Commission**: Snugg charges a commission to organisations that receive referrals from the GHH. This includes physical survey providers, installers and lenders.
- **Carbon Cashback administration:** Where carbon credits have been verified, issued by Verra and subsequently sold by Snugg on behalf of users, an admission fee will be deducted before the net proceeds are paid to homeowner's fee.

16.2 Unique Selling Propositions

Several unique selling propositions have been validated during the pilot, specifically:

- **Personalisation:** Drives increased engagement and boosts retention: (see section 12.1), which means we are getting more traction than more standardised services (including both digital and call centre-based approaches to retrofit advice).
- **Funding support:** The feedback on our unique “Grants Checker” and “Finance Finder” features shows that those features address a significant knowledge gap in how to fund improvements (see section 15.1).
- **Carbon cashback:** Our “Carbon Cashback” proposition is the first of its kind in terms of the robustness of its approach to generating carbon credits for retrofit in the owner occupier sector (see section 0)

16.3 Potential Operational Changes

Given the digital nature of the GHH, there is an inherent ability for us to scale. However, future operational changes might include:

- **Supplier management:** As the number of assessments and installations continues to grow, alongside the number of suppliers of these services, there will be an increased need to manage dependencies. This may include more dedicated resource to oversee these relationships, albeit we will seek to digitise those integrations wherever possible.
- **Account management:** Similarly, as the number of distribution partners grows, each with its nuanced requirements of the GHH, we foresee an increased need for dedicated resource to manage those relationships.
- **Customer service:** As user volumes grow, we are already seeing some increased demand for email support. Whilst we see significant potential in the use of product improvements, automated messaging and AI chatbots to provide automated solutions to customer service, we do anticipate an increased resource demand in this area.

16.4 Barrier to Commercialisation

The commercialisation and scale up of the GHH is largely driven by the extent to which Snugg can evidence that homeowners are taking action to green their homes. To grow this evidence, we will continue to address various barriers with innovative features:

- **Next Best Measure:** Our testing has shown that most homeowners are deterred from taking action by recommended improvement plans that include several measures at high overall cost with long payback periods. Our ‘Next Best Measure’ initiative will simplify this by suggesting the user focusses on just one measure at a time. This highly personalised recommendation will be based on property characteristics and energy modelling, alongside consumer segment and propensity data obtained from third parties.

- **Pragmatic messaging on heat pumps:** Homeowners are currently confused about the viability of heat pumps. At one extreme, elements of the UK media widely share negative stories about heat pumps, often based on isolated installations. At the other extreme, heat pump advocates claim that any home is heat pump ready but then specify very powerful heat pumps at high cost and of an impractical size. Snugg is developing a more pragmatic philosophy that will provide personalised, honest guidance on the suitability of the technology.
- **Compelling business cases:** The GHH vision is to turn the financial case for retrofit from a 'no hoper' to a 'no brainer'. Further work will be required to consistently present our user with a financial case with positive cash benefit immediately. Several levers support the achievement of this, including addressing the high cost of product finance and the use of carbon credits.

16.5 Remaining Project Barriers

Specific actions that need to be taken by other stakeholders are as follows:

- **Government support for retail lending:** The discounts available on green loans are currently small - whether green mortgages for efficient homes or more innovative mortgage products that support improvement. Very often there are better, 'non-green' mortgage rates available. Government support to enable rate discounts could therefore have a significant effect on customer behaviour.
- **Reducing the 'spark gap':** The financial case for a heat pump would be much more compelling to a homeowner if the ratio of electricity to gas tariffs were reduced. This is a well understood market issue, but one where the GHH is ideally positioned to explain to users at the point where the gap reduces as well as pointing users to appropriate tariffs that partially address the gap.

16.6 Additional Partnerships

We are actively seeking closer partnerships with governmental bodies, from central government to combined and local authorities. The GHH capability could be successfully deployed to provide a digital-first solution for public engagement on home energy efficiency improvement.

16.7 Impact of GHFA on Commercial Viability

The GHFA has had a transformational impact on the GHH's path to commercial viability. Our registered user base has grown from 4,100 to around 17,000 during the course of the Pilot Phase and the development of functionality has helped enable significant partnerships with Which?, Yorkshire Building Society and others.

17. Final Reflections

17.1 Summary of Key Insights

The GHH Pilot has demonstrated a clear role for a digital platform in supporting homeowners through the process of making energy efficiency improvements to their homes, with 75% of users agreeing that they are more likely to take action after using the GHH. Several key insights from the GHH pilot highlight innovative ways to engage homeowners in the end-to-end retrofit journey:

- **Ongoing engagement with customers requires personalisation and proactive outreach:** 36% of returning GHH users did so in response to a personalised email. Also user socio-demographics vary significantly across different GHH partners, demonstrating the need to consider the starting point for customer journeys and personalise accordingly.
- **Digital nudges in this area are highly effective:** open and clickthrough rates on personalised email nudges were considerably higher than market benchmarks (open rate of 45% vs benchmark of 31-36%, click through rate of 13.5% versus benchmark of 2.2 to 2.9%).
- **Tools to track energy consumption drive ongoing engagement:** users that connect their smart meters to the GHH are 124% more likely to return to the platform, view their data (including carbon emissions) and interact with the GHH more broadly.

We have also shown that the GHH has a critical role to play in presenting a compelling financial case to take action, with 63% of users saying they have a better understanding of how to pay or get grant funding after using the GHH. Additional key insights were gathered on how homeowners consider the financing of their retrofit activities:

- **Homeowners need more information on grants:** Of all the features that have been developed in the GHH, homeowners are most interested in understanding the grants that are available and for which they are eligible. 31% of users proactively engaged with the “Grants Finder” during the pilot.
- **Homeowners also need help with financing:** in line with other studies, many homeowners are keen to finance their green home improvements using existing savings (50% of clicks in the GHH Finance Finder). The most researched lending product is mortgages (65% of clicks).
- **Carbon credits have a significant role to play in financing retrofit:** 78% of users researched indicated that Snugg’s Carbon Cashback proposition would positively influence their decision to proceed with making an improvement.

17.2 What Would We Do Differently?

Snugg are extremely pleased with the outcome of the pilot. If starting again from scratch, it may be beneficial to adopt a more agile approach. Many of the features that were developed as part of the GHH project were determined at the outset of the project, rather than in response to customer needs as the product was developed. Whilst there was an element of course correction (through change requests) and each individual feature was adapted through extensive user testing, we believe that a less prescribed set of outputs may be more effective.

17.3 Implication of Pilot Findings

The pilot findings will provide a significant input to our future strategy and product roadmap. In particular:

- We might build on the success of the “Grants Finder” and “Finance Finder” capability, making this more readily available as a standalone capability for use by installers and other organisations.
- We have demonstrated the benefit of personalised communications in driving engagement and retention. However, many of our partners prefer to do their own marketing. It is likely that we will enhance the support that we offer our clients to embed more personalisation in their own processes.
- We have identified that users can be overwhelmed by large, expensive improvement plans and that most people prefer something simpler. Our ‘Next Best Measure’ initiative will take this simplifying approach to the next level.