

CHAMELEON[®]
TECHNOLOGY

Chameleon HTC-Up Project

Final Report

Issue 4

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Glossary of terms

Acronym	Explanation
API	Application Programming Interface
BUS	Boiler Upgrade Scheme
CTA	Call to Action
CTR	Click Through Rate
EV	Electric Vehicle
FCA	Financial Conduct Authority
GDPR	General Data Protection Regulation
GHFA	Green Home Finance Accelerator
HTC	Heat Transfer Coefficient
HTC-UP	Project name
IA	Information Architecture
MoU	Memorandum of Understanding
MPAN	Meter Point Administration Number
MVP	Minimum Viable Product
NPS	Net Promoter Score
QA	Quality Assurance
ROI	Return on Investment
SLA	Service Level Agreement
UAT	User Acceptance Testing

Executive Summary

Introduction

The HTC-Up project, delivered by Chameleon Technology, Furbnow, and NatWest, aimed to pilot an innovative green finance solution that simplifies the retrofit journey for homeowners. The project integrated smart energy monitoring (via the ivie Bud), personalised retrofit advice, and access to finance and installation services. By combining behavioural insights, digital engagement, and technical analysis — notably Heat Transfer Coefficient (HTC) scoring — the pilot sought to address key barriers to retrofit uptake and test scalable pathways for green finance delivery.

Key Dates

The key milestone timelines can be summarised as follows:

- **Project Setup:** December 2023 (actual: March 2024)
- **Pilot Delivery:** July 2024 (solar journey), November 2024 (heating journey)
- **Project Closure:** June 2025

Grant Amount

The project received grant funding from the Department for Energy Security and Net Zero's (DESNZ) Green Home Finance Accelerator (part of the Net Zero Innovation Portfolio). The total project costs were £928,609, comprised of:

- £703,770 – grant funding provided by DESNZ
- £224,838 – match funding provided by partners

Geographic Scope

The pilot was delivered UK-wide, with no geographic restrictions. Both Chameleon and Furbnow serve customers across the UK, and NatWest's digital reach ensured broad accessibility. Regional uptake varied, with higher engagement in the Southeast and Scotland. No location-specific barriers were identified.

Pilot Objectives

The pilot aimed to:

- Enable homeowners to identify and act on retrofit opportunities using smart data.
- Provide tailored green finance options to reduce upfront cost barriers.
- Simplify access to trusted installers.
- Test two customer journeys (via NatWest and Furbnow) to assess behavioural responses and conversion rates.

The most successful elements included the integration of HTC scoring into the ivie app, the solar suitability tool, and the Furbnow-led customer journey, which demonstrated higher engagement and trust.

Barriers Addressed

The pilot sought to address:

- **Upfront cost barriers** through finance products.
- **Installer trust and access** via Furbnow's vetted supplier portal.
- **Information gaps** through personalised advice and HTC scoring.
- **Behavioural inertia** using gamified challenges and rewards in the ivie app.

Adjustments included the introduction of a solar journey due to seasonal constraints and the reward schemes from Chameleon.

Consumer Impact

Piloting with UK homeowners resulted in:

- 538 ivie Buds dispatched; 315 app downloads; 43 HTC scores generated.
- Customers valued personalised advice and trusted installer referrals.
- Furbnow's journey showed higher conversion due to pre-existing interest and trust.
- Accessibility was enhanced through digital tools, though further work is needed to reach less engaged demographics.

Outcomes and Learnings

Key learnings from the pilot included:

- HTC scoring proved a promising tool for retrofit suitability and verification.
- Trust and timing are critical, users responded better to offers from known, relevant sources.
- The pilot highlighted the importance of seamless digital journeys and early stakeholder alignment.

Unexpected Results

The following unexpected results were observed during piloting activities:

- Pop-up ads in banking apps had a relatively low conversion (though this is symptomatic of non-contextual pop-ups into an unrelated banking journey).
- A/B testing revealed gender-based engagement differences, with men over 65 most responsive.
- Users were sceptical of overly simplified messaging (e.g., "quote in 30 seconds"), which reduced trust.

Readiness for Commercial Deployment

The product is partially ready for commercial deployment:

- The “insight to installation” journey is viable and will continue post-pilot.
- Finance integration remains a challenge due to regulatory constraints and partner readiness.
- Future success depends on improved data sharing, streamlined onboarding, and broader market engagement.

The pilot offered valuable insights for the green finance sector, particularly in using smart data for retrofit verification and in designing user-centric, scalable retrofit journeys.

1 Introduction

HTC-Up is a project delivered by Chameleon Technology, Furbnow and NatWest that was funded by the Department for Energy Security and Net Zero's (DESNZ) Green Home Finance Accelerator (part of the Net Zero Innovation Portfolio). This final report outlines the development, delivery, and evaluation of a consumer-focused green finance product that was trialled. The project aimed to address key barriers to the uptake of home retrofit measures, particularly by simplifying access to advice and creating smoother pathways to funding, all while enhancing customer experience. To achieve this, a customer journey was created which was optimised throughout the project. This integrated the analysis of energy usage to deliver energy saving advice, assess the viability of upgrades and offer access to finance and routes to installers – providing a holistic solution to end users.

The project tested several marketing channels — including in-app banking ads, direct email, and social media campaigns — and various messages to assess customer response and optimise engagement strategies. Through the analysis in homes, the project also assessed the viability of using HTC-Up as a means of identifying homes with heat pump potential and as a validation method for confirming installations had taken place to the satisfaction of funders. This report captures both the successes and lessons learned across the pilot's duration, highlighting the critical intersections between customer behaviour, digital engagement, consortia partnerships, and regulatory considerations in delivering green finance at scale.

Throughout the pilot, particular emphasis was placed on reaching a variety of audiences. The project supported users in understanding their needs and opportunities through energy analysis, utilising both data and free energy monitoring devices (ivie Buds). These tools served as catalysts to encourage consumers to start their retrofit journey. The team tested and adapted multiple customer acquisition pathways, including a pop-up ad integration within NatWest's digital banking app, a direct email campaign through Furbnow's database, and a digital advertising campaign. Each channel targeted distinct demographics and yielded varying results in terms of sign-ups, engagement, and conversion rates. In parallel, iterative design improvements and feedback loops ensured that the user journey was continuously refined, aligning with real-world behaviours and barriers.

The insights presented in this report will contribute to the ongoing development of effective, scalable green finance solutions. In addition to quantitative results such as uptake rates and behavioural responses, the report explores the technological integrations, partnership structures, regulatory context, and operational innovations that shaped the pilot. These findings provide a foundation not only for future

iterations, but also for informing industry-wide strategies to improve the accessibility and appeal of green finance offers — ultimately accelerating the UK's transition to a low-carbon housing stock.

1.1 Project Partners

The project was delivered by three partners:

- **Chameleon Technology:** Provided energy efficiency and retrofit opportunity recommendations, provided the ivie Bud solution to analyse energy use, calculate and utilise Heat Transfer Coefficients (HTC), managed the user journey through to installers and ran the rewards scheme.
- **NatWest:** A leading banking institution in the UK, offered the core finance products to be tested on the project and links to its Home Energy Hub which includes features to help access trusted installer partners and to understand available local and nationwide grants.
- **Furbnow:** Provided vital links through the installer and low-carbon technology supply chain, delivering the final parts of the customer journey to plan and facilitate installations.

2 Pilot Project summary

The Green Home Finance Accelerator (GHFA) was a UK-wide programme designed to stimulate innovation in green finance products that support domestic energy efficiency, low-carbon heating, and renewable energy retrofits. The key aims of the programme were to reduce financial barriers for consumers, encourage the development and piloting of scalable green finance solutions, and foster collaboration between lenders, retrofit specialists, and other key stakeholders. The programme sought to accelerate the commercialisation of green finance and help drive progress toward the UK's Net Zero targets. The HTC-Up project was supported within this portfolio to address these key challenges.

2.1 Service summary

This section outlines the proposed product and service and how the design and implementation adapted during the project.

2.1.1 Original scope of service

HTC-Up aimed to create a green finance offer which helps domestic homeowners and buy-to-let landlords access a comprehensive solution for assessing home energy efficiency. This includes recommending home improvement products and measures that maximise energy performance improvements, suggesting the optimal order of installation where applicable, and providing a suitable loan product to meet their needs and budget. Additionally, it offers a straightforward route to credible, approved suppliers who can install the low carbon technology and energy improvement measures.

The offer sought to verify that the home improvement measure has been installed and consider any next steps which would further improve the property. It utilised Heat Transfer Coefficient (HTC) readings and smart meter data to provide insights tailored to the specific property with indicated expected savings based on the individual circumstances.

HTCs measure how easily heat is transferred through the materials of a building, typically expressed in watts per square metre per degree Kelvin ($\text{W/m}^2\text{K}$). In the context of home energy performance, a lower HTC indicates better insulation and less heat loss, making it a key metric for assessing the suitability of retrofit measures like heat pumps.

Key innovations the project originally aimed to deliver included:

- HTC unlocked, through the ivie Bud — an in-home display equipped with temperature sensors connected to smart meter data — was used to assess the home energy efficiency. The HTC approach provides far more accurate measures than current EPC ratings¹ and utilises data specific to the property characteristics to provide tailored solutions advice for the individual property, while also verifying installations.
- An appropriate finance product which takes the key recommended green improvements from the HTC as a single package and offers an integrated finance product
- A supplier portal to improve access to quality products/installers of the green technology/energy efficiency improvement measures.

2.1.2 Service changes during the project

Comparison journey approach

Both customer journeys began with the ivie Bud being sent to the customer to identify cost and carbon-saving opportunities; NatWest customers were then directed to the NatWest Home Energy Hub for additional expert advice from their suite of trusted partners and the availability of finance to spread the cost, if required, while Furbnow customers were first supported with installation planning and costing, before being connected to a finance provider.

This enabled a deeper understanding of how opportunities and barriers to uptake of low carbon technologies vary, depending on which stage of customer journey they are addressed. It also allowed for an assessment to test the effectiveness of the different marketing approaches of each provider.

The finance products offered

NatWest customers were offered the full range of NatWest competitive unsecured and secured loans, as well as access to their existing savings products, if they were looking to spread the cost of any works.

Addition of a solar journey

Due to delays in the project which are covered in *section 3.2 Challenges and factors impacting project delays*, an additional solar offer for testing was introduced within

¹ Dunn et al. (2023). Critical review of using metered energy consumption data on Scottish EPCs. ClimateXChange. Available at: <https://www.climateexchange.org.uk/publications/critical-review-of-using-metered-energy-consumption-data-on-scottish-epcs>

the project. As the trial phase began in summer, a solar proposition was more appropriate than a heating product. The project used this opportunity to gain insights in the solar domain until the colder months allowed HTC testing to commence.

2.2 Target customer groups

The high-level primary target market was private homeowners and those in the process of getting a mortgage for their first home. Within the Discovery Phase, the initial plans were to target landlords making the changes to their properties in order to comply with 2025 regulations for minimum EPC C rating by 2028 (proposed Minimum Energy Efficiency Standards). However, due to the market inertia and the government policy changes which removed this deadline, the original business proposal for the project was revised within the Discovery Phase work to deliver benefits to homeowners first. Successfully delivering a solution to this group was intended as a proof point, which could be built out to landlords and tenants if it proved successful.

Within the homeowner market, the project targeted different groups across the customer journeys. The NatWest journey primarily targeted those with existing mortgages. Additional testing took place with customers who only had current accounts. Another cohort NatWest targeted were a selection of Coutts and Co customers. Coutts and Co are the High Personal Wealth division of NatWest. They have a customer group who test new propositions. Part of the user journey saw Chameleon customers offered recommendations, who were then linked through to the NatWest customer journey and be offered additional expert guidance via their Home Energy Hub. The principal marketing effort targeted this group by testing the NatWest customers' interest through promotional messaging displayed when they logged into their digital accounts. The prompt aimed to incentivise customers to claim a free ivie Bud, so their energy needs could be analysed. These insights were then shared with NatWest to guide next steps, supported by the suite of energy efficiency experts partners within the NatWest Home Energy Hub.

The Furbnow journey engaged a diverse consumer group, many of whom had at least considered property upgrades. These participants typically had previously expressed an interest in exploring low carbon technologies, though some were still in the early stages of their journey. Members of this group were typically older and more affluent homeowners. This is also reflected in the demographic of customer who have low carbon technologies in the ivie app. This group were more likely to be further along a decision-making cycle or at least interested enough to have registered with Furbnow or connected to their social media channels.

Furnbow implemented a two-part campaign to attract users into the trial; a direct email campaign to their existing customers, and a digital advertising campaign.

Direct email marketing approach

Furnbow implemented a targeted direct email campaign to engage their users with an exclusive offer for the ivie Bud. The campaign leveraged Furnbow's existing customer base, users who have shown interest in home energy efficiency solutions previously. By using a personalised and data-driven approach, the campaign aimed to maximise engagement and drive sign-ups for the ivie Bud.

The email campaign followed a structured approach, beginning with a compelling subject line designed to capture attention and encourage high open rates. The email also included a strong call-to-action (CTA) to claim the ivie Bud, highlighting limited availability to prompt immediate responses to drive interest.

By strategically timing the emails and using A/B testing² to refine messaging and CTA placement, Furnbow ensured that their campaign remained effective in capturing user interest. The campaign was continuously monitored throughout, with metrics such as open rates, clickthrough rates, and conversions analysed to optimise future outreach efforts.

Furnbow Digital Ad campaign

Furnbow launched a targeted digital advertising campaign to attract new users, offering a free ivie Bud as an incentive. This provided access to the customer journey within Furnbow, with insights delivered via the Chameleon solution. This campaign leveraged the digital advertising platform's advanced audience targeting capabilities to reach individuals most likely to be interested in energy efficiency solutions, ensuring the adverts were shown to users for whom the offer would be relevant and valuable. The campaign featured a mix of engaging adverts designed to capture attention quickly, with a strong emphasis on the gift of the ivie Bud to drive interest.

To maximise effectiveness, Furnbow used the digital advertising platform's audience segmentation tools to target specific groups, including homeowners, individuals interested in sustainability, and those who have engaged with similar energy-saving content. A lookalike audience approach was used to expand the targeting pool.³ This

² A/B testing is a method of comparing two versions of a product, webpage, or feature to determine which one performs better based on a specific metric, such as user engagement or conversion rate.

³ A lookalike audience is a group of people identified by a platform (such as Meta or Google) who share similar characteristics, behaviours, or interests with an existing customer or audience segment, and are therefore more likely to be receptive to the same products, services, or messages.

approach, informed by existing Furbnow users, aimed to expand reach to individuals with similar interests. Retargeted adverts then reminded those who interacted with the campaign but had not yet signed up for the offer.

The campaign followed a performance-driven approach, continuously optimising advert delivery based on real-time engagement data. A/B testing was conducted to refine advert designs, messaging, and CTA placements, ensuring the best-performing variations receive the highest exposure. Additionally, the landing page experience is designed for seamless conversion, making it easy for users to sign up and claim their free ivie Bud with minimal friction.

By leveraging the digital advertising platform's powerful targeting and retargeting capabilities, along with compelling creative assets and data-driven optimisation, Furbnow's campaign proved effective at signing up new recruits to the Chameleon solution.

2.3 Barriers the service planned to address

The HTC-Up offering was purposefully designed to address the barriers to uptake of green retrofit measures, helping to unlock wider market potential. The user flow seeks to help homeowners to identify the retrofit measures which will have the greatest impact to their property, remove the upfront cost barrier with an attractive finance product and simplify the installation process with trusted providers.

In the Discovery Phase, 1009 online interviews were conducted with customers in the target market to understand both their drivers, barriers to uptake and perceptions on the proposed project offer, which was used to inform the product design.

The highest-ranked barriers to retrofit measures identified are described here, alongside how each barrier was addressed within the product.

Upfront costs of retrofit are too high (51% of respondents)

The finance product was created to enable the costs of retrofit to be spread over a longer period. Research found that, when relying on personal savings, the average intended investment was approximately £2,200. This is significantly less than the cost of major retrofit measures that participants expressed interest in, such as solar panels (29%), window glazing (27%), insulation (20%) and heat pumps (16%).

With the right finance product for them, 42% said they would start retrofitting works within a year, with a further 39% suggesting the product would unlock the activity in more than one year.

Finding appropriate/certified tradespeople (32%)

The supplier portal delivered by Furbnow was intended to allow the users to find local, accredited suppliers who are Trustpilot approved and facilitate the whole process in a simple way through the platform. Trustpilot approval refers to the recognition or positive rating a business receives on the Trustpilot platform, indicating that it has met customer satisfaction standards based on verified reviews and feedback. The installers are all quality checked for both their work and policies to ensure the highest standards are guaranteed, which builds customer trust. In Furbnow research, over 80% of customers would recommend the service to others.

The NatWest journey also featured a referral to accredited tradespeople via its Home Energy Hub (HEH). The HEH services customers that are interested in home energy efficiency by offering a discounted in-home assessment and access to trusted partners to get the work done. The HEH also features a bespoke service showing potentially available local and nationwide government grants and links to the bank's finance products, if the customer wishes to spread the cost of the improvements.

Uncertainty on ROI (29%) and How well alternatives work (22%)

The Chameleon solution aimed to assess HTC and energy usage tailored to the specific user and home, based on their current technology mix, providing an assessment on the savings and timescales for return on investment (ROI), based on their current usage and benchmarked against similar households. This builds confidence in the investment case.

Unsure where to start (24%) and Unsure what measures are right for me (21%)

The Chameleon solution aimed to provide recommendations on the solutions which will have the greatest impact in reducing cost and carbon. These are split between simple adjustments and those requiring investments, with the latter offering the finance option route in HTC-Up.

Effort to research renovations (20%) and Need to familiarise with new systems (14%)

This was intended to be overcome through both the Chameleon and Furbnow measures listed above, including the ability to provide clear, tailored energy advice and access to information from installers on new systems.

The project's overall assumptions about barriers remained unchanged; however, additional insights were gained – particularly regarding the differences between perceived responses to solutions and actual actions taken. These are explored in more detail later in the report.

2.4 Geographic restrictions

The HTC-Up offering was made available across the UK. There were no limitations placed on involvement by the project. All partners service customers in all parts of the country, so were able to undertake the project without local constraints.

2.5 Regulatory requirements

In line with the findings in the Discovery Phase, the proposition does not challenge or require regulatory consideration over and above other financial products. As the lender is not offering specific recommendations on either the mortgage or retrofit measures the customer may wish to undertake, there is no current regulatory risk. During the piloting of the products, Chameleon did not serve as an introducer or credit broker. This position was advised by the legal teams from partners within the project. The finance product introduced for the project underwent all approvals within Q1 of the project, so there was no risk of internal approvals delaying the research activity. Care was taken to structure the approach in a way that avoided regulatory or compliance issues, ensuring that no additional barriers were introduced into the customer journey. Certain approaches adopted during the project affected the smoothness of interaction between different individual partner software systems; however, these were considered a more pragmatic solution for the trial delivery.

3 Pilot Timelines

This section details the key timelines of the project covering the set-up, engagement and product development through to launch, onboarding, and evaluation. The project was delayed due to internal and external factors assessed in detail in this section. These delays required timeline adjustments, including compressed activities and phased rollouts, which helped maintain delivery momentum but limited the scope of initial user engagement. While the core project objectives were ultimately met, the timeline shifts did impact the ability of the project to complete the full installation process in the type of numbers which we had anticipated.

3.1 Key pilot milestones and timelines

The key milestone timelines can be summarised as follows:

Milestone/Activity	Planned date	Actual date
Project Set Up	Dec 23	Mar 24
Back End Development – HTC Score integrated into Cloud	Apr 24	May 24
Front End Journey Development	Apr 24	June 24
Finance Product	May 24	The project offered the full suite of NatWest finance products via their home energy hub. The Furbnow customer journey used partnerships between Furbnow and other finance providers
Systems integration NatWest, Furbnow and Chameleon	May 24	July 24
Marketing and Engagement Strategy	Jun 24	Oct 24
Pilot Delivery and Customer Journey Testing	Jun 24	Jul 24 for Solar Journey Nov 24 for Heating Journey

Market and Engagement Campaigns	Jul 24	Sep 24 for Solar Mar 25 for Heating
Final Delivery	Mar 25	Jun 25

3.2 Challenges and factors contributing to project delays

Progress in the trials was hindered by a number of issues which impacted both the delivery of the trial and the overall results.

Delays in project set up

Delays in the finalisation of the contracts for the project and the issues which caused the split of the customer journeys significantly delayed the start of the project. This meant the trial did not start properly until March 2024, meaning the first winter of the project timeline (i.e. the main heating period) was not available for analysis.

Seasonal constraints and their impact on testing approaches

The project faced a seasonal challenge: key testing for HTC and heat pump suitability ideally occurs during colder months, when heating demand is highest. However, with assessments starting in spring/summer, this data could not be captured effectively. This limited the ability to evaluate real-world performance and customer needs. To address this, the project pivoted to testing a solar proposition. This was more appropriate for the season and maintained customer engagement and allowed continued testing of low-carbon technologies, though it required additional development and altered the original customer journey.

Original concept

The original concept featured a desire to create an innovative *‘Propel’* or *‘Pathway’* green finance product. This concept was based on *‘Propel’* helping the customer to move quickly in one move, by unlocking the finance to allow them to achieve their goal quicker. The *‘Pathway’* concept provides the opportunity to undertake the changes in smaller steps but are incentivised to continue their journey to the overall target outcome through attractive terms and useful advice to continue the process. *‘Pathway’* offered the option to commit to the upgrades in smaller, more affordable stages, using a suitable finance product. A reward scheme was added to each product, which provided incentives to continue the next stage of upgrades by offering discounts, cash, and prize rewards to support the *‘Pathway’* journey and ongoing energy saving.

Loan concept offered

The reward element was a Chameleon offer to incentivise users to take on the challenges in the ivie app and reward successes in behaviour change.

NatWest customers were redirected to the NatWest Home Energy Hub and it's suite of existing NatWest finance offerings.

Furbnow had a journey which included finance provided by Scroll Finance. Their aspect was outside of the core deliverables of this project but offered a finance product as part of the Furbnow side of the journey.

Delays caused by the complexity of agreements required by large organisations

Delays in signing the contract with NatWest and Furbnow, particularly in relation to data sharing agreements, significantly impacted the project timeline. Finalising the necessary legal and compliance frameworks took considerably longer than anticipated, delaying the implementation and testing of critical components, such as customer data flows and system integration between partners. This delay affected the sequencing of the customer journey, pushing back key activities like the distribution of ivie Buds, analysis of household energy data, and the referral process to finance and installation partners. As a result, much of the trial was compressed into a shorter window, limiting the ability to iterate and refine based on real-world customer responses over a sustained period.

Key areas of challenge in signing contracts involving data sharing agreements centred around data protection, liability, and security protocols. Large organisations such as banks have stringent requirements to ensure compliance with regulations such as General Data Protection Regulation (GDPR), which means every aspect of how data is collected, processed, stored, and shared must be clearly defined and risk-assessed. Negotiations impacted issues such as ownership of data, consent mechanisms, data breach responsibilities, and liability limits.

These challenges were eventually overcome through iterative legal reviews, supported by detailed technical documentation and risk mitigation strategies, such as robust data anonymisation, limited data retention periods, and clearly assigned responsibilities for data governance. Although these reviews were time consuming – particularly for SMEs with limited resources and smaller legal teams – many compromises were ultimately reached. In most cases, this involved either scaling back the initial data scope to reduce risk or introducing pilot-specific agreements separate from longer-term commercial contracts. Building mutual trust through transparency and proactive engagement between legal, technical, and project teams also played a critical role in moving negotiations forward.

These challenges highlighted the broader difficulty that SMEs often face when partnering with large financial institutions. While collaboration with major banks bring credibility and scale, the disparity in organisational processes, risk tolerance, and resource availability can create friction. The successful completion of projects and trials such as these, along with established agreements increases the potential for future collaboration. In everyday business operations, it would not have been possible to continue to resource the process of overcoming the barriers.

The contract was signed in December 2024, which impacted both the NatWest and Furbnow journey launches. The introduction of the solar savings testing enabled testing of the core journey while the issue was being managed.

Delays in homeowner recruitment

Due to the challenges outlined above, there was a delay to the start of the recruitment commencing at a significant scale through both NatWest and Furbnow. This impacted the overall findings on the project, as there was less time for users to move through the full journey and complete installations.

3.3 Impact of the delays

While the challenges to deliver the core elements of the trial were overcome, the delays undoubtedly impacted the overall learning of the project. As highlighted above, the shift in timeline caused by the later agreement meant that there was a far smaller recruitment window than was anticipated. Users have been successfully onboarded, and they have started to make smaller changes as recommended by the app. However, the time available to progress through the full decision-making process for larger scale home improvements has been constrained. While each of the constituent parts of the journey has been successfully tested, there are very few participants who chose to progress through the entire recommendation-finance-install process.

The delays meant the vital winter season was missed which reduced the time available to test HTC across both cold seasons. This was resolved in the second winter season, however, it resulted in fewer data points being available to validate the findings than would otherwise have been possible.

3.4 Mitigation measures

Mitigation measures were taken to ensure the learning on the project was maximised. A solar journey was introduced to ensure that the recommendation

engine and referral approaches were working effectively. This allowed the journey to be refined and meant additional learning on larger-scale installations could be gained, while not being impacted by the seasonality.

In parallel, the technical requirements for the Furbnow customer journey were developed. Although this could not go live until the overall project agreements were finalised, it helped maintain momentum. The technical requirements for that workstream were prepared in advance, enabling a faster introduction once the issues were resolved. A range of marketing messaging was developed quickly, allowing for greater insight into which methods and messages were most effective. This was achieved despite a limited recruitment window.

These approaches were effective in ensuring the learning available was maximised, however the project was undeniably affected by the issues.

3.5 Key project management lessons learned

An internal project evaluation found that stricter deadlines should have been enforced. The opportunity for collaboration was commercially attractive and it is still hoped that the outcome will have a positive commercial result for all parties, so overall it has been beneficial to work through the process. NatWest's size and customer reach potential made it seem imperative to keep proceeding as planned, particularly following a successful Discovery Phase.

Stronger project management would have supported the outcome and there are new approaches which would be introduced when working with large organisations in the future. From the outset, it was intended to request a documented process of the internal sign off channels required for key decisions and contracts, completed with estimated timelines and Service Level Agreements (SLAs) for achieving these. While the SLAs would be difficult to implement, signing such points on a Memorandum of Understanding (MoU) style would set the tone required for successful and engaged delivery.

A review was undertaken to assess whether any of the legal and compliance discussions could have been started earlier. However, the Discovery Phase project had been delivered without identifying these areas as significant issues. As this had been completed and the areas of engagement were known, it would have been difficult to do more in advance to change the outcomes.

A relatively light touch legal approach was used to minimise potential issues and reduce timelines. Despite the positive intent behind this approach, it may have

contributed to the delays as the legal teams quickly started to add significant additional content which took longer to move between the parties with comments.

An attempt was made to use a 'minimum viable data' approach to see if that would help to speed up initial sign-off. While it was unsuccessful this time, it was a helpful exercise to consider the data required for start-up and enhancements, as in other instances, this may have been more successful in resolving such blockages.

Future projects would need to ensure that a clear stakeholder responsibility matrix (RASIC) is obtained from the larger organisation, in line with the process document outlined above.

4 Integration and utilisation of technology

4.1 Technology development and integrations to achieve the customer journeys

HTC Score

While the HTC scoring technology and data collection functionality had been developed as part of a previous project, additional work was required to adapt and integrate this capability into a different context within the app, ensuring the score was displayed appropriately within the new user journey. The aim of this was to make the scoring more accessible within the ivie app. During the original development, the HTC score had been part of a heating insights area of the app. The technical development in HTC-Up added additional information to help the users to understand the functionality and moved it to a more prominent location within the app. It was also included within the 'challenges' section of the app, where users are encouraged to undertake activities to understand new concepts or make changes to reduce their energy use.

Solar Suitability

To generate customer engagement during the summer months — when heating is typically not in use — the project introduced a new initiative focused on solar energy. This approach encouraged customers to assess their home's suitability for solar and consider solar panel installation. This was within a 'challenge' activity that was introduced to bring additional low carbon technology into scope for the project.

A comprehensive development effort was undertaken to build a new 'solar suitability' model. This involved creating a brand-new back-end algorithm model, internally known as the optimisation engines. This model can now calculate the energy saving for a number of low carbon technologies. The first version was solar; the next version was solar and battery.

In tandem with back-end development, front-end design and development was carried out to include Application Programming Interface (API) connections within existing systems.

Customer Grouping

The key issue that required development in the customer journey was management of the three distinct customer groups. NatWest customers should only be referred to NatWest, and Furbnow to Furbnow. Any Chameleon users would also be referred to Furbnow.

To support this, customer groups were defined, and deep link technology was implemented to identify whether referrals originated from NatWest or Furbnow. This enabled internal flagging which then managed onward referral journeys.

4.2 Technology approach and customer journeys

As described in *section 2.1.2 Service changes during the project*, the project transitioned from a single customer journey to two. The two different user journeys provided an opportunity to test whether the order of information and opportunities to access funding and installers makes a significant difference to the overall uptake of low carbon technology.

The two journeys tested are summarised as:

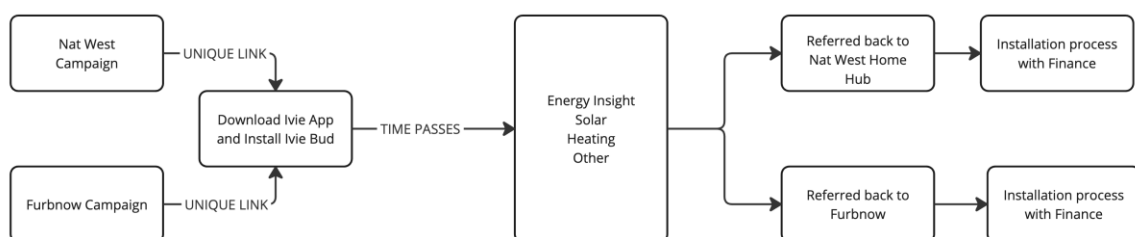
- i. **NatWest Journey:** The Chameleon ivie Bud was distributed and the system identifies the appropriate cost/carbon saving measures. The customer is then passed to NatWest home hub to find trusted partners who can help get the work done and finance product to help spread the cost if applicable.
- ii. **Furbnow Journey:** The Chameleon ivie Bud was distributed and the system identified the appropriate cost/carbon saving measures. The customer is passed to Furbnow who plan and cost the installation, before passing the customer to a finance provider to offer a finance product to fund the installation.

The following sections outline the different journeys and how they were used within the trial.

Journey design and features

Figure 1 Simplified customer process, below, shows a simplified version of the customer process for both partnerships. This is covered in more detail below.

Figure 1 Simplified customer process



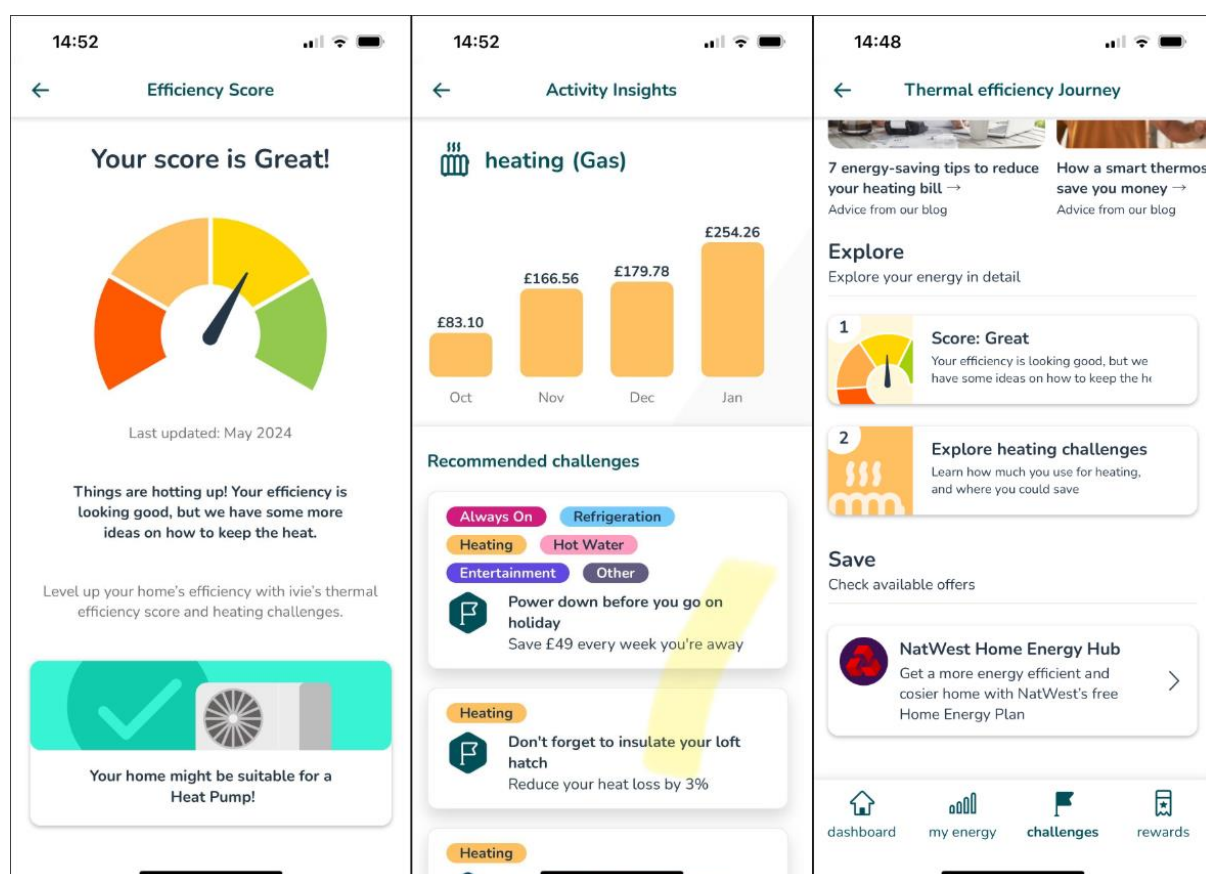
Role of the Chameleon ivie Bud in personalisation

Key to both customer journeys is the use of the Chameleon ivie Bud and app solutions to identify the most appropriate measures for energy improvement opportunities in the home. Key components of the Chameleon system include:

- **ivie Bud:** The latest in-home display that connects with a smart meter and shows the homeowner how much energy is being used in real time.
- **ivie app:** Powered by smart meter data, the ivie app provides personalised tips and insights on how to use less energy. It also includes fun challenges, rewards, and prizes for saving money, energy and carbon.
- **Heat Transfer Co-efficient (HTC):** (as defined in *section 2.1.1 original project scope*)
 - After the Bud has been ordered and the ivie app installed, personalisation begins.
 - As well as displaying live energy usage, the ivie Bud records ambient temperature. When connected to Wi-Fi, this temperature data is shared with the ivie app, combined with energy, weather and profile data. This data is added to an algorithm managed by the data science team, which produces an HTC score — an indicator of heat efficiency — displayed in the ivie app.

It is at this point in the journey where the customer refers themselves back to either NatWest or Furbnow with a web link. *Figure 2 Heating insights and referrals* - shows screenshots of heating insights and referral pages. It shows the journey through the app which users take to assess the heating aspects of their home and how this leads to the referral.

Figure 2 Heating insights and referrals



4.3 Technology performance and effectiveness

The technology approach has proved successful in the project. From the user data, which was tracked by the different customer journeys, users have been active in taking on energy saving activities. Most have enthusiastically engaged with the process. Challenges attempted by users and the outcomes completed during their time on the app were compiled, with progress updates from NatWest and Furbnow on their interactions. This was specifically focused on larger energy saving measures that enabled users to progress to the next stage of the customer journey.

All customer's data has been managed throughout this process to understand interactions within the ivie app. Research on how customers have viewed both the heating and solar journey has also been completed.

The thermal efficiency result was also tested by surveying homes with an HTC score to understand whether the fabric of the home is in-keeping with the score.

4.4 Unexpected technological challenges

Overall, the technical challenges were minimal within the trial. There were some minor changes which were introduced during the project to improve the usability of the Chameleon system to move through the referral process. A known limitation was the inability to transfer certain information from one stage of the journey to another partner's system, due to data sharing concerns and the specific requirements set by that partner.

4.5 Learnings from adding new technologies to the product/service

The integration of systems across partners highlighted the critical need for early-stage technical alignment. Differences in platform architecture, data formatting, and API capabilities led to inefficiencies and delays. A shared technical Discovery Phase — where the technical requirements, constraints and environment were gathered — at the outset would have enabled better planning of data flows, clarified limitations, and helped establish common standards — avoiding rework and streamlining integration.

Transitions between partner platforms risked fragmenting the customer experience, particularly where users were redirected across different websites or systems. This disjointed journey can undermine trust and reduce conversion. To improve continuity, future iterations should prioritise a more seamless front-end experience — such as a single sign-on or unified interface — ensuring users perceive the service as a cohesive, end-to-end journey. This would be easier with the data sharing agreements in place to enable clearer sharing and user approval of data sharing.

Launching a fully integrated system proved challenging and placed pressure on all partners to deliver simultaneously. Unlocking contract solutions to enable a phased or modular rollout would have enabled earlier testing, quicker feedback loops, and reduced the risk of longer delays. This approach also allowed teams to refine each stage of the journey before scaling to full integration.

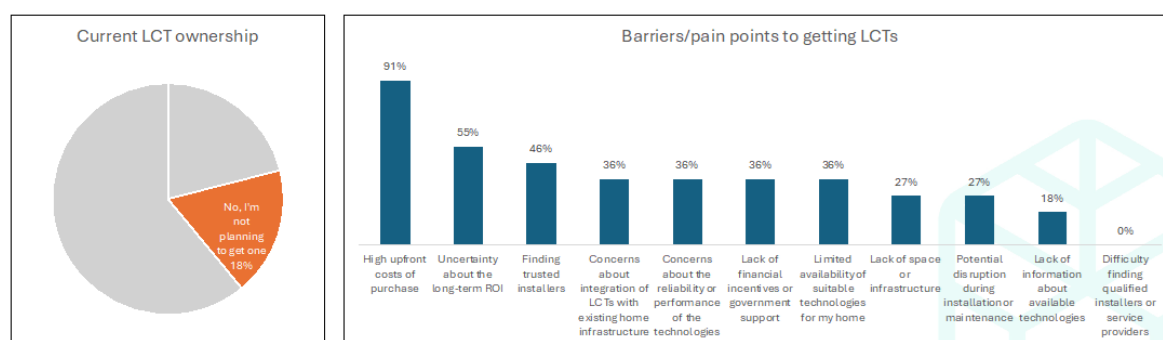
4.6 Additional complementary technology solutions

Based on customer feedback, there is no significant gap in the technology which would enhance the product offering. The survey (*see Figure 3 Customer survey results on barriers to low carbon technology adoption*) completed in April 2025 found

that barriers are around cost, return on investment and compatibility with existing home technologies:

- **High Upfront Costs Remain the Primary Obstacle:** For the 18% of participants not planning to adopt low-carbon technologies (LCTs), the most cited barrier is the significant initial cost, suggesting affordability continues to be a key concern.
- **Uncertainty Around ROI and Installer Trust:** Many are hesitant due to unclear long-term financial returns and difficulty in identifying reliable installers, pointing to a need for better and trusted provider networks.
- **Concerns About Compatibility and Incentives:** Additional barriers include worries about how well LCTs will integrate with existing home infrastructure, scepticism about performance, lack of government support, and doubts about whether their homes are suitable for such technologies.

Figure 3 Customer survey results on barriers to low carbon technology adoption



The key components of the customer journey are present. There is potentially a need for more deep-dive material or external references to sites such as *Which?* on the Chameleon app for users who want to get additional, independent information on specific large purchases, such as heat pumps. Partnering with a credible, independent expert who presents information clearly for non-experts, might be helpful, but there is a risk that too much information might become overwhelming. Ongoing testing with new sign-ups will continue to assess whether this hypothesis influences the speed of their decision making.

5 Integration of design or process innovations

5.1 User-centric design methods used

The design of the user journeys was based on research delivered as part of the initial phase of the HTC-Up project and targets the removal of barriers to uptake. The research from Discovery Phase of the project was reviewed; to understand interaction with the designs, this was also combined with a desk research activity.

The Chameleon team derived customer insights from ivie customer research, external desk research and internal experiences working with low carbon technologies. These insights were developed into user stories and descriptions, which were then tested in interviews and online research activity to validate their accuracy and refine the user needs. Recommendations were split between those which are possible to implement at minimum viable product (MVP), launch and future development activity for detailed refinements.

When more of the solution was developed, 12 users were asked to complete several exploratory tasks to analyse their interaction with the prototype. The tasks explored the use and location of the features within the app, with specific questions targeting their comprehension of the visualisations they were being shown. A post-interview survey was also sent out to gather feedback. The findings were split between ranked metrics of different features of the system and more open feedback, which provided some useful insights which were implemented. These included better comparison between product options, highlighting differences more clearly and user interface improvements to the heat pump home suitability tool.

An initial deployment with 1200 users was undertaken to gauge their reaction and track their real usage to help identify gaps. Further usability testing and user interviews were completed on the design of the features that were released. Design tweaks were made to the user journey to improve overall user value and conversion. These included:

- Navigation improvements to enhance usability.
- More content and educational information to explain the different factors that impact how much users can save with different technologies. Research showed that customers need; more information on subsidies, practical guidance on selecting suitable technologies, help with finding reliable installers and tips for optimising energy savings.
- Clearer user expected savings breakdown

5.2 Customisations and needs they addressed

By conducting further research with a new group of users and monitoring their interactions with the site, several issues were identified, providing the opportunity to develop additional customisation recommendations. Users were reluctant to complete the customer detail form to have their details automatically sent to an installation partner. Users were opening the screen but were uncomfortable providing their contact details to enable an immediate call back. To provide a softer link through the journey, a weblink to the installer/referral partners has been included. This will be monitored to understand how consumers interact with differing referral processes.

For the Chameleon solar journey testing, there was a low completion rate for the full journey. Less than 10% of customers clicked on referral links after completing the solar energy savings workflow. This indicates either issues with the customer journey in the app or that the users want to have their own choice/more time to consider their options. The referral option remains in their system to pick up later once they have more time to consider their options. To address the issue of customers not completing the insights journey, some steps in the process were removed, along with certain detailed design elements that were found to discourage completion.

Customer research indicated that providing a detailed breakdown of costs and potential savings for low carbon technology installations could achieve increased engagement. To resolve this, a typical cost output has been developed to show a view of a customer's return on investment. It benchmarks those costs against the likely savings and clearly shows the likely time it would take for the customer to get their money back and how much they would expect to earn over the initial investment over a likely product lifetime. Co-design workshops were undertaken to determine how to display a typical cost to the user in an easily understandable way.

5.3 Final learnings and adjustments made

Once the full customer journey was live, additional interviews and design feedback sessions were conducted with users, revealing a new set of ideas for further improvements. The quickest ones to implement have been added to the system, while the remainder are planned for development post-project.

Enhanced Information on Installers

One of the key concerns raised by users was the lack of clarity regarding the locality of recommended installers. To build trust and provide greater transparency, the system will be updated to share more detailed information about each installer,

including their proximity to the customer's location. This additional context will help users feel more confident that the recommended installers are both well qualified and accessible for post-installation support if any issues arise. Highlighting local expertise will address users' desire for a more personalised and trustworthy service, fostering a stronger connection between the customer and the installer.

Deeper Research into Locality Concerns

While locality plays a significant role in users' trust and decision-making processes, further research will be conducted to better understand the underlying reasons for this concern. Initial feedback suggests that users associate local installers with greater accountability and support. By further exploring these concerns, the team can identify additional ways to reassure users, whether through clearer communication, more robust installer vetting processes, or additional support mechanisms. This research will inform future updates to ensure the platform addresses users' trust issues effectively.

Greater Flexibility in Installation Calculations

To provide users with more control over their solar energy solutions, the tool will be updated to allow for editable setup options within the calculation process to determine cost and viability. Users will be able to modify key variables such as the number of solar panels in their installation or adjust the size of the home battery based on their specific needs and preferences. This added flexibility can allow users to tailor recommendations to their unique circumstances, increasing their confidence in the proposed solutions. By giving users the ability to customise their installations, the app will better support informed decision-making and align closely with an individual consumer's energy motivations or goals.

5.4 Challenges in implementing the changes

Only minor challenges were encountered during the implementation of the proposed changes outlined in section 5.2. The primary limitation was the availability of the technical team, who had to balance this work with other ongoing priorities; this was carefully managed to avoid major delays.

A slight challenge also arose in determining where certain refinements were best implemented. For example, due to delays, components of the system were tested before the full customer journey was live. As a result, some recommendations may have overlapped with solutions already offered by other partners, reducing their

perceived impact. However, full end-to-end testing has since provided valuable insights, demonstrating that the technology is well positioned to meet information needs and help address key barriers — particularly in improving customer understanding of the benefits and real-world impact of low carbon technologies in the home.

5.5 Most successful design and process innovations

User stories are a qualitative research tool used to capture real customer experiences, needs, and motivations in a concise, human-centred format. They help teams understand user perspectives and identify pain points or opportunities for improvement. By focusing on what users want to achieve and why, user stories support the design of more intuitive and effective services or products. This approach was particularly valuable in the project.

User stories helped the co-design processes because they grounded design and development decisions in the real needs and experiences of end users. By framing requirements from the user's perspective, they ensured that solutions were focused on delivering tangible value. User stories made abstract concepts more relatable, helping cross-functional teams including designers, developers, and stakeholders maintain a shared understanding of user needs throughout the project. They also supported iterative development by breaking down the journey into manageable, testable components, which were prioritised and refined based on user feedback. This approach fostered empathy with the user, encouraged collaboration, and retained the user at the centre of every design decision.

User interviews proved to be a crucial element of the design process, as they provided rich, qualitative insights into user behaviours, motivations, challenges, and expectations. Unlike surveys, which offer breadth, interviews delivered depth which allowed designers and researchers to explore why users think or act a certain way. This helped uncover unspoken needs, pain points, or contextual factors that may not surface through other methods. By engaging directly with users, teams were able to validate assumptions early, challenge internal biases, and gain a more accurate understanding of how a product fits into users' real lives. They supported the design of solutions to ensure they felt intuitive and relevant. Incorporating findings from interviews into the design process ensured that decisions were informed by actual user experience, creating effective, user-centred outcomes. These approaches helped to gain a detailed understanding of the user needs and allowed for creative solutions to be implemented to resolve the gaps.

5.6 Additional design or process methods that could further improve efficiencies and effectiveness in the future

To further improve design efficiency and effectiveness in future projects for both the consortium and the sector, several additional user-centred design methods could be introduced or more formally embedded into the process.

Rapid prototyping

Rapid prototyping would allow for early, simplified versions of a product to be created — ranging from paper sketches to interactive digital mock-ups — that allow teams to test functionality and user experience before full-scale development. These prototypes can be iteratively refined based on real-time user feedback gathered through usability testing sessions. In these sessions, participants complete key tasks while observers identify where confusion, errors, or hesitation occur. This approach allows teams to validate assumptions, identify design flaws early, and refine features based on how users interact with the system, rather than relying on internal predictions. It reduces wasted development time and ensures the final product is user-friendly and fit for purpose. While some rapid prototyping was used on this project, it is an area which could be developed further for future projects, especially for rapid MVP testing across all aspects of the full customer journey.

Card sorting

Card sorting is a user research technique used to help design or evaluate the information architecture of a website, product, or service. Participants organise topics into categories that make sense to them and may also label these groups, providing insight into how users mentally structure information. This helps inform navigation, labelling, and grouping decisions to better align with user expectations. It is especially valuable when designing navigation menus, dashboards, or content groupings.

Participants are given content topics or features (on cards — digital or physical) and asked to organise them in a way that makes sense to them. This reveals mental models and preferred groupings, which inform how interfaces should be structured to match user expectations.

Information Architecture (IA) testing, such as tree testing, further validates whether users can find what they're looking for within the proposed structure. These methods ensure that content is intuitive and easily discoverable, reducing cognitive load and improving overall usability. Feedback indicated that certain sections of the customer journey would benefit from this activity. These highlighted changes required in onboarding customers to the ivie app. Research conducted in July and August 2024

identified the need for improvements to the smart meter linking process to ensure accurate energy-saving feedback, as well as enhancements to the overall account creation experience.

Analytics and heat maps

Analytics and heat mapping tools provide detailed insights into how users engage with a digital product. These tools can reveal where users click, scroll, hesitate, or abandon tasks, highlighting areas of friction or confusion. Session recordings offer a play-by-play view of real user journeys, enabling teams to spot unexpected behaviours or technical issues. This evidence can be used to inform design changes, prioritise fixes, and refine user flows to better align with actual usage patterns — ultimately leading to higher engagement and satisfaction. While analytics were utilised heavily in the project, greater use of heatmapping would provide more detailed assessment opportunities.

With more time, a deeper focus could have been placed on the inclusivity and accessibility audits to ensure there were no features which are limiting usability within certain groups. While all technology is developed to best practice standards, having more time to assess the usability further and discover any gaps would be advantageous.

6 Pilot Partnership Learnings

6.1 Strategy for bringing the product/service to market

The project was delivered by three partners:

- **Chameleon Technology (lead partner):** Provided energy efficiency and retrofit opportunity recommendations, provided the ivie Bud solution to analyse energy use and HTCs, managed the user journey through to installers and ran the rewards scheme.
- **NatWest:** Offered access to trusted installer partners and finance products
- **Furbnow:** Provided vital links through the installer and low-carbon technology supply chain, delivering the final parts of the customer journey to plan and facilitate installations.

Chameleon, NatWest and Furbnow already had a selection of trusted energy efficiency and low-carbon heating providers they recommend, but this was formalised through the supplier portal.

Ultimately, the goal was to utilise the energy data analysis and recommendations of the Chameleon ivie system to help overcome the understanding and information barriers to purchase, with the NatWest and Furbnow elements of the journey intended to remove financing and installation barriers.

The product had numerous routes for customers to start accessing the system. Existing Chameleon customers could join the journey as they looked for the next energy saving measures in the solution. Marketing campaigns outlined above, with the offer of free ivie Buds within the project, helped to attract new customers into the proposition through the other partners to establish whether this was a potentially viable route for growth of the offer.

6.2 Benefits of the partnership

The collaboration between the three partners brought a range of complementary strengths that were critical to the successful delivery of the pilot. Each organisation contributed distinct expertise:

- Chameleon offered deep experience in product development and customer insights.
- NatWest provided essential financial infrastructure, access to trusted partner installers, regulatory credibility, and direct access to target customer segments.

- Furbnow brought technical knowledge of retrofit measures, access to installers and supply chain coordination.

Working together allowed the team to develop customer journeys that were both financially and technically viable.

The partnership structure also helped streamline communications, accelerate product iteration through shared learning once all the agreements were in place, and ensure a more integrated and seamless offering to customers. This collaborative approach ultimately strengthened the pilot's relevance, delivery efficiency, and potential for future scalability.

The installer links offered through NatWest and Furbnow added considerable value for customers who were considering retrofit measures and required finance to proceed. By connecting customers directly with trusted, vetted installers as part of a seamless journey, the offer helped reduce the complexity and uncertainty often associated with sourcing reliable contractors.

Although full testing could only commence late in the project, the links created with Furbnow and Chameleon have already seen significant interest and early progress. The Furbnow customers have been particularly active in trying the “Challenges” in the ivie app to encourage reduction of their energy consumption. They are likely to have already been considering an improvement measure given their connection to Furbnow social media/email list. However, the system has helped them towards decision-making to action the larger change while simultaneously considering smaller energy changes, which they may not previously have considered.

The primary measure of success is uptake, which also acts as a proxy for ongoing commercial opportunities. Based on the marketing successes outlined above, there is a clear benefit for both Chameleon and Furbnow in pursuing closer collaboration and ongoing development of combined journeys that support individuals from the upgrade decision through to the installation process. In addition to the project agreement there have been several commercial agreements with both Furbnow and solar installers.

6.3 In-flight changes

The original aspiration for the trial intended a single journey passing the user from Chameleon through to NatWest or Furbnow for trusted installer relationships and back again to the partners for a finance product if needed. As the project was initiated it became clear this aspiration would not work. Two different customer journeys were tested within the project. These were set out in *section 2.1.2 Service*

changes during the project, showing the different order of interventions through different suppliers to help the customers to the same end goal.

Initial findings suggest the Furbnow journey has been more successful at driving opportunities and energy saving measures as shown in *section 11 Marketing*. More time to promote the former may still prove viable with refinement of the targeting and approaches, but with Furbnow customers already engaged in a consideration of upgrades, it makes sense that this group is more active from the outset.

6.4 Lessons learned from these partnerships

The partnerships formed during this project highlighted the importance of clear communication, aligned objectives, and early engagement between all parties to ensure smooth delivery. One key lesson learned was the value of involving all partners from the outset in the co-design of the customer journey. This helped to build mutual understanding and trust, while enabling the early identification of areas of potential conflict, which could be designed out from the beginning.

Differences in organisational cultures, priorities, and timelines also posed challenges. This underlined the need for proactive coordination, clearly defined roles and consideration of whether there should have been more stage gates to determine the appetite for partners to continue. This may have fostered an open environment in which the project could have been given greater prioritisation, or new partners introduced if certain conditions were not met, without damaging existing relationships.

Future collaborations could benefit from establishing shared governance structures and decision-making processes early on, as well as dedicating time and resources to relationship-building throughout the project lifecycle. Strengthening these collaborative foundations would support more agile responses to emerging challenges and help scale successful innovations more effectively.

7. Governance Frameworks

7.1 Internal governance structures

The internal governance structures were established to oversee the development and deployment of the product/service, featuring a multi-tiered framework designed to ensure accountability and coordination. A core project team was responsible for day-to-day delivery. As SMEs, Chameleon and Furbnow had senior technical team members and technical departments contributing. As NatWest is a much larger organisation, they had a core team of representatives from two different teams in day-to-day project meetings and engaging with other teams as required. Work package leads were responsible for managing the tasks in their remits across all partners, who reported up to the project manager.

The project manager and key project team representatives reported into a steering group, which provided strategic oversight and ensured alignment with organisational goals. Regular project meetings, risk assessments, and milestone reviews were embedded into the governance process to monitor progress and adapt plans as needed. In addition, clear reporting lines and documented decision-making protocols helped to assess decision making progress and ensure transparency across all stages of the pilot.

7.2 Stages of internal approvals

The sign-off process for technical integration testing — the interfacing between the different partner software solutions — followed a structured and phased approach to ensure the reliability and readiness of the system before launch. Initially, individual components were tested in isolation to validate their functionality and performance against technical specifications. Once component-level testing was complete, a detailed test plan was developed to guide the system integration testing phase, which assessed how well the various components functioned together within the end-to-end system. During this phase, any defects or issues were logged, addressed, and re-tested as needed.

Following successful integration testing, a user acceptance testing (UAT) phase was conducted with selected end users, to validate that the system met real-world operational requirements and user expectations. Feedback from UAT was reviewed and necessary adjustments were made. Only after successful completion of all testing phases and formal user sign-off was the solution submitted to a senior manager for final approval, marking the official sign-off for technical readiness.

For deliverable sign off, there was a multi-stage review process. The primary author proofed the work and had this approved by their manager, before sharing with the project manager for sign off. A final review from a senior manager took place before this was shared with DESNZ.

Large financial organisations have an exceptional level of scrutiny placed upon them when defining and managing finance products for residential customers. This resulted in the decision to offer customers the full range of existing NatWest financial offers.

Similarly, the data sharing arrangements took far longer than expected. These are outlined in detail in *section 3.2 Challenges and factors contributing to project delays*. Due to the challenges outlined in that section, there was a delay to the widest recruitment commencing at a significant scale through both NatWest and Furbnow. This has impacted the overall findings on the project, as there has been less time for users to move through the full journey and complete installations.

7.3 Addressing governance challenges and mitigation

The issues with data sharing and the ability to start working with NatWest were the primary challenges. All the teams put significant effort into resolving the issues but without question, there were improvements which could have been made to how this was managed as highlighted above. The solar journey was implemented through a different route and involved significant optimisation of the customer journey within the Chameleon tools to ensure that, once the issues were resolved, performance would be streamlined and positioned to provide positive results.

7.4 Internal processes to manage risks - Furbnow Journey

NatWest has robust financial and regulatory management processes in place, which informed much of the decision-making on issues such as financial risk, compliance, and operational oversight. Alongside the finance product side, they supported the project to work through Financial Conduct Authority (FCA) regulations.

To ensure compliance with FCA regulations, it was essential that there was no direct referral to NatWest from the Furbnow customer journey. Instead, customers were provided with information about available finance options including loan products from a range of providers and signposted to explore suitable providers, including NatWest, without being steered or advised. This approach maintained neutrality and avoided any activity that could be interpreted as regulated credit broking.

This requirement to avoid direct referrals to NatWest did introduce some limitations to the Furbnow project's delivery, particularly in terms of streamlining the customer journey. The need to maintain neutrality meant it was not possible to fully integrate finance offers into the advice and installation process. This may have reduced the immediacy or appeal of financing options for some customers. As a result, additional effort was needed to ensure customers were adequately informed and supported to explore finance independently. In future, alternative approaches — such as using an FCA-authorised third party to handle referrals or developing a more sophisticated self-navigation tool within the platform — could help improve customer experience while remaining compliant.

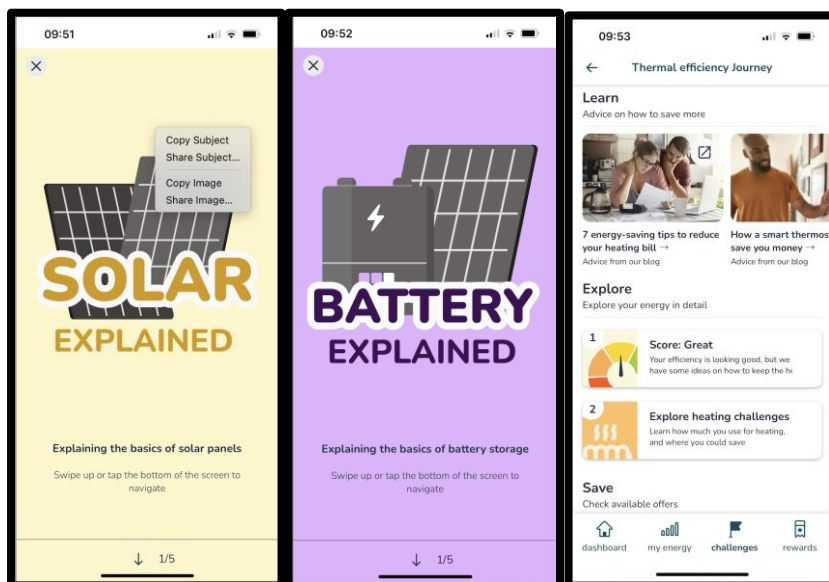
8. Advice and guidance

8.1 Summary of advice, guidance and educational resources and approaches used

Customers were supported throughout their retrofit journey with a range of advice, guidance, and informational tools designed to help them make informed decisions. These included access to educational content on the benefits and process of home retrofitting, tailored recommendations based on property type and customer needs, and step-by-step guidance on planning and funding measures.

Figure 4 Informational pages - shows screenshots of the ivie app which includes several informational pages about home solar generation and heat pumps and how they could benefit the homeowner.

Figure 4 Informational pages

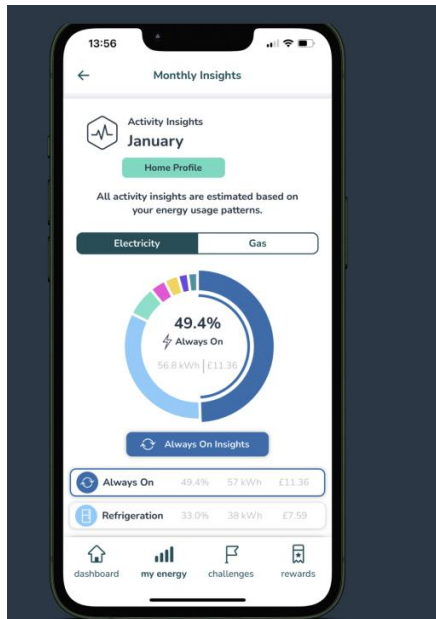


8.1.1 Chameleon energy and retrofit advice

Powered by smart meter data, the ivie app generated personalised tips and insights on how to use less energy, while also highlighting opportunities to explore further journeys, assessing the potential for low carbon technology installations. The ivie app breaks down user energy usage by activity and works out opportunities for user to cut down and save money and energy.

The ivie app accurately pinpoints where the most energy is used to inform decisions and take actions to reduce usage, as shown in *Figure 5 Monthly insights page in ivie app*.

Figure 5 Monthly insights page in ivie app



8.1.2 Heat pump suitability - HTC analysis tool

The HTC score was used as a key metric to assess the viability of installing a heat pump in participating properties. It provided an indication of a home's thermal efficiency by measuring how much heat is lost through the building fabric. A lower HTC score suggests better insulation and reduced heat loss, making the home more suitable for a heat pump. This score was particularly useful in identifying properties where a heat pump could operate efficiently and effectively, ensuring customer suitability and optimising system performance. It also helped inform any necessary retrofit improvements to enhance the home's readiness for low-carbon heating.

To achieve this, ivie Buds — in-home display units equipped with a range of sensors paired with smart meter data — were utilised to gather all required data points. These values were recorded over a 10-12 day period to produce a reliable HTC score, which was then assessed against an agreed set of metrics to determine heat pump suitability. This analysis was carried out alongside property information already provided by users. As part of this process, customers were also introduced to heat pump technology through tailored educational content, helping them understand the benefits, types, and options available, thereby supporting more informed decision-making based on their property's suitability.

8.1.3 Solar suitability tool

At the start of the process, the user was asked to complete additional profile questions. The user will have previously shared the type of property, number of people living in the home, number of bedrooms, any low carbon technologies already in the home and fuel used for heating and cooking.

The additional data requested at this point included roof direction, roof shade and roof pitch. This new data was then fed into a purpose-built optimisation engine which calculated the potential savings for a user to install solar panels. These optimised savings were then displayed in the ivie app, with detailed descriptions of the product choices, considerations to make and processes for progressing to installations.

8.1.4 Installation support tool

NatWest Home Energy Hub Portal

The NatWest Home Energy Hub helps users by providing information on the energy efficiency of their home, including a free digital home assessment. Homeowners can then move onto a discounted in-home assessment and entry to a suite of approved trusted partners if they choose to get work done. Help in finding local and government grants is also contained within the tool as well as financing options should customers wish to spread the cost.

Furbnow

The Furbnow advice helped users to understand the journey to installation. It provided a range of information on the processes for different installations and clear and reassuring process maps which show how Furbnow support users through all aspects of the customer journey. It explains how installers through the system are checked, approved and recommended. This is covered in more detail in *section 9 Installer Integration*.

8.2 Effectiveness of the resources and lessons learned

Overall, positive responses were received to a variety of qualitative surveys taken throughout touchpoints in the solar and wider customer journey tests. Customers consistently expressed appreciation for the clear and comprehensive advice provided, highlighting that it helped demystify the often-complex retrofit and financing process. Many noted that the guidance made them feel more confident in understanding the benefits and practicalities of installing energy-efficient measures, particularly in relation to how the products and services recommended were tailored

to their individual homes and circumstances. This clarity was especially valued given the technical nature of retrofit solutions, which can be daunting without accessible information.

Customer feedback and support

Another key positive theme from customer feedback was the personalised nature of the advice, which many found relevant and directly applicable to their needs.

Customers appreciated that the guidance considered their specific property characteristics and potential energy savings, which helped them to have the information to make more informed decisions. This tailored approach was frequently mentioned as a motivating factor in continuing to explore retrofit measures, as it bridged the gap between generic information and their unique situation, increasing trust and engagement.

Customers valued the ongoing support and responsiveness of the advisory resources throughout their journey. They found significant value in both the ivie app and the Furbnow installation journey and felt confident asking questions to support their decision-making. The feedback highlights the crucial role that well-designed advice and guidance play in encouraging adoption and satisfaction in retrofit initiatives.

App learnings

When the ivie app alone was used, customers expressed concerns they had about the proficiency of recommended installers to encourage them to the next steps of the journey. This was largely due to the novelty of low-carbon technology, they worried that installers sometimes lacked the technical knowledge to address complex installation issues, such as the placement of inverters.

These concerns were addressed once the Furbnow journey was introduced, as it provided a clear process with accredited installers with relevant experience and case studies of similar work, helping validate their competence. These insights show the importance of vetting installers thoroughly, ensuring they possess both local knowledge and technical expertise to meet user expectations, which Furbnow prides itself on.

During the solar testing, features were trialled to simplify the process — such as the promise to *“Receive an outline quote in 30 seconds”* — intended to provide a guide price to installation costs, helping users quickly consider the viability of progressing or whether a finance product might be needed. Inadvertently, this contributed to distrust. Many users felt that such a rapid turnaround seemed too quick to be reliable, raising doubts about the thoroughness of the quotes and whether they were tailored to their specific needs. Some participants also suspected that the app’s recommendations might be biased, further undermining trust in the platform. To

address this, users suggested more transparency in how those values were calculated and clearer communication about the criteria used for recommendations. Similarly, users wanted very clear descriptions of how recommendations were made to feel confident that the tailored service is accurate for their needs. The need for accuracy was vital. In a small number of instances where an incorrect recommendation was made, users felt this undermined their confidence in the whole process. Ensuring accuracy KPIs of 99%+ will help build the confidence of users.

9. Installer integration

Installer Integration

Installer relationships are managed by either Furbnow through their network of installers, and NatWest Bank via their Home Hub. Both organisations have a selection criterion and review their partners regularly.

Due to the lack of installations to date there were no issues with having the right number of qualified installers.

Customers were introduced to installers via the NatWest Home Hub which includes large brands such as HIVE, British Gas, Wickes and Trustmark.

The Furbnow service is much more service driven. The customer would receive a project plan with the installations required. The customer would have the option of levels of project management offered by Furbnow from a full service to plan only. This still included recommended installers.

No challenges were noted in this part of the process, however, the offer of different project management levels of service resonated more with customers, which would account for better engagement with Furbnow.

10 Verification Processes and Quality Assurance

10.1 Verification approaches used

While only a small number of installations were completed due to the short project period and long customer sales cycle, no verification has been carried out as to-date. However, verification approaches were designed as part of the project. The approach was intended to assess the effectiveness and reliability of remote verification methods in comparison to traditional, in-person checks. The aim was to identify which approaches could provide sufficient rigour and accuracy at scale, while remaining cost-effective and minimally disruptive for customers.

10.1.1 Approved surveyor visit

The most basic approach to verification has been the traditional visits from a surveyor to provide final quality assurance (QA) checks and confirm the products have been installed correctly.

10.1.2 Smart data analysis

Based on energy disaggregation from the smart meter data, the energy profiles of individual assets in the home were able to be identified, which provides a validation of the new device working in the home. Heat pumps and electric vehicle (EV) charging in particular have distinctive profiles which differ from other domestic devices, which enables positive identification of a change.

10.1.3 HTC analysis for insulation and heat pump installations

Part of the project aimed to determine the viability of using the HTC score before and after a heat pump installation to offer a data-driven method to verify installation and assess impact — without the need for another visit from an independent party to the household. The proposed process plan can be summarised as:

1. **Pre-installation measurement:** The initial HTC score reflects the total heat loss of the property under its existing heating system (typically a gas boiler). This baseline provides an accurate picture of the home's thermal performance.
2. **Post-installation measurement:** After a heat pump is installed and is operational, a second HTC assessment is conducted. As heat pumps operate differently — providing lower temperature heat steadily over time — the heating pattern and energy input change. This results in a distinct thermal signature, which can be identified using detailed temperature and energy usage data.

3. **Signature detection:** Changes in heat delivery profiles, run times, and flow temperatures from the heat pump — as opposed to on/off cycles typical of boilers — can be detected in the data used to calculate HTC. These behavioural differences alongside changes in energy usage type, support verification that a heat pump is in use.
4. **Combined with fuel source and system data:** When HTC results are compared with smart meter data and possibly heat pump system data where available (e.g. flow temperatures or run times), it forms a strong evidence base, which could be reliable enough for finance partners to sign off the funding as used appropriately.

To test the viability of the solution in the real-world, testing was undertaken where there were details of a subset of homes with HTC scores.

These homes were offered a survey which included a heat demand score to compare against the HTC Score. The results are shown in *Table 1 HTC Scores vs heat demand calculated by home assessment* below. In a real-world setting - customer homes - the HTC score was found to reflect the home's heat demand, indicating that the score is an accurate indication of the heat efficiency.

Table 1 HTC Scores vs heat demand calculated by home assessment

HTC SCORE	Customer	Postcode	Survey date	kWh/m ² (heat demand)
Good	Customer 1	NG2	29-May	127
Needs Improvement	Customer 2	DE56	27-May	217.8
Good	Customer 3	LU4	28-May	181.6
Good	Customer 4	GU35	23-May	176.1
Excellent	Customer 5	GU22	20-May	83.9
Good	Customer 6	GL6	27-May	109.6
Excellent	Customer 7	RG1	23-May	122.7
Good	Customer 8	S6	19-Jun	165.3

The HTC approaches were accepted by the supply chain partners as essential for long-term business opportunities. End users, particularly heat pump customers,

were receptive — especially as the approach provided a means to check that they were using the product efficiently and the set up was correct.

10.2 Challenges in the verification process

There were no major challenges in the verification processes themselves, though the wider project issues did impact the overall process. The delays to the project meant only a small number of installations were possible, limiting the testing opportunities and the project's ability to validate the verification process with statistically significant data. Where possible, verification testing was run with other groups who had recently had an installation to ensure that we could deliver this aspect of the project with sufficient numbers.

The delayed pilot limited the winter period available for HTC testing, which is vital for the most accurate assessments. A larger dataset would have been preferable for drawing conclusions, as the assessor benchmarking checks identified crucial factors that need to be resolved to support this as a viable long-term solution.

Findings showed that if the ivie Bud taking the HTC score readings were placed too close to doors, windows or fireplaces, the reading accuracy was impacted. This is likely due to external temperature fluctuations and drafts affecting the sensor's ability to measure stable indoor conditions. It is likely to still be sufficient to answer the verification question but adds risks of inaccurate results which should be avoided.

This could be resolved by requesting a photograph of the location where the device is located, to help determine whether unexpected readings may be due to installation issues. The customer would be advised to move the device accordingly. While this is not an ideal customer journey approach, it was the most practical of the options identified without adding costly home visits.

10.3 Verification best practice

The results of the HTC and data verifications may mean that there will be less requirements for additional site visits after installations, which reduces costs and hassle for customers. Further work will take place to determine any additional risks once a larger dataset is available for analysis.

It has not been possible in the project to get confirmation of whether this approach would be sufficient for banks to validate the loan arrangements based on the data-driven factors alone. Although this has been discussed with banks and other organisations that verify installations.

Demonstrating that HTC can be reliably used to verify heat pump installations has the potential to significantly enhance trust and transparency in the wider green finance market. By providing a robust, data-driven method to confirm the effectiveness of retrofit measures, such as heat pumps, lenders and investors can gain greater confidence in the outcomes of funded projects. This, in turn, could unlock more affordable and scalable finance options for consumers by reducing perceived risks and supporting performance-based financing models.

Moreover, the adoption of HTC as a verification standard could contribute to the development of more consistent metrics across the sector, facilitating greater comparability, standardisation, and credibility in green home retrofit investments. To fully realise these benefits, further advancements are needed in data collection methods, including solutions which mitigate against poor location of monitors in the property. Continued innovation and collaboration across the sector will be essential to refine HTC methodologies, overcome current limitations, and drive widespread adoption that supports a more reliable and transparent green finance market.

11 Marketing and market penetration approaches

The target customer groups have been summarised in *section 2.2 Target customers*. This section explores the results of the marketing approaches to those groups across each of the customer journeys.

11.1 NatWest Journey Approach

The interest of the NatWest customer base was tested with promotional messaging when users logged into their NatWest digital account. The prompt was to incentivise people to take up a free ivie Bud, so they could analyse their energy needs and feedback through to NatWest for trusted installer partners and the potential finance product. The section below outlines the process undertaken and results of the testing.

11.1.1 Results

The pop-up ad received a total of 56,702 impressions. Out of these, 3,779 users engaged by responding to the prompt. Among them, 865 showed positive interest, with 120 accepting the offer immediately and 745 selecting "Not Right Now," indicating potential future engagement.

A total of 1,616 users responded neutrally by dismissing the prompt without further interaction, while 1,298 users explicitly indicated they were not interested by selecting the "Not Interested" option. This overall click-through rate (CTR) was 6%, slightly above forecast. Positive responses were at 1.5%, falling just short of the 2% target.

Overall, 21 users signed up to Chameleon from the activity. The response rates observed suggest that while the pop-up ad was effective in attracting initial attention, there may be opportunities to optimise the messaging or targeting to improve positive engagement. Factors such as timing, user context, or the clarity of the offer could have influenced user decisions. For future campaigns, testing alternative designs, personalising prompts based on user behaviour, or adjusting the frequency and placement of the ad could help increase the proportion of users who take immediate positive action. These learnings highlight the importance of ongoing refinement and A/B testing to maximise the impact of digital engagement strategies.

While the user numbers are below statistically significant levels, sign-ups relative to the existing user base have been assessed to determine whether this channel offered a different profile to our typical customers.

On a regional basis, the Southeast and Scotland were more represented in the sign-ups from the NatWest campaign than Chameleon's typical base. 29% were from the Southeast in the campaign, compared to 16% of the overall base. Similarly, Scotland were 19% in the campaign and 8% overall. Northwest representation was lower from the NatWest group compared to Chameleon core users.

For property types, there was a higher proportion of detached properties (48%) in the NatWest users who signed-up to use the solution compared to the Chameleon base (29%). EV ownership was higher in the NatWest groupings (28%) compared to the Chameleon base (10%). Solar ownership was 29% from NatWest compared to 10% of all Chameleon users. Without more data, it is difficult to clarify assumptions, but it does imply that the NatWest group of sign-ups are on average more affluent than the typical channels used and/or have shown a greater tendency to invest in energy infrastructure.

11.1.2 Learnings based on the campaign

Campaign Overview

The results from the NatWest campaign indicate that while the pop-up ad generated significant impressions, the conversion rate remains an area for improvement. With 56,702 prompts issued but only 120 immediate acceptances, it is evident that many users either dismissed the prompt or opted to defer their decision. This appears to be a key limitation of the promotional campaign. Overall, 21 users were successfully converted and began using the analysis tools, while starting to make energy savings.

Contextual Limitations of Pop-Up Ads

Pop-up ads on bank login screens are likely to generate a low response rate due to the context in which they are presented. When users log into their online banking, their focus is typically on completing a specific task — such as checking their balance, making a payment, or reviewing transactions. As a result, they are less receptive to promotional content or offers that interrupt their flow. These ads can also be perceived as intrusive or irrelevant, particularly if they are not clearly tailored to the user's interests or financial situation.

User Trust and Engagement Considerations

Customers may have concerns about security or legitimacy when unexpected messages appear in such a sensitive environment, leading them to ignore or dismiss the ad rather than engage with it. For engagement to be more effective, messaging in banking platforms needs to be timely, personalised, and embedded in a way that feels helpful rather than disruptive. It has been reflected that building through email campaigns, alongside wider social media and digital communications could have

created a far more conducive approach to getting a higher number of users onboarded through the process.

Indicators of Latent Interest

The relatively large number of users selecting "Not Right Now" (745 users) indicates that there is interest, but many may need additional time or information before taking the next step. Offering the option to receive further details by email or to schedule a follow-up reminder could help sustain engagement over time. Personalising the messaging based on user behaviour — for example, following up with users who have previously shown interest — may also improve the chances of conversion.

Future Considerations

These points would ideally have been tested if the project had progressed according to the original timeframes. Next steps could be to consider running a longer, more cohesive campaign, offering at least the app as a solution to support low carbon technology uptake decision making. This could help assess whether making finance available for retrofit installations can effectively overcome the barriers currently hindering adoption.

11.2 Furbnow Journey

Furbnow implemented a two-part campaign to attract users into the trial, a direct email campaign to their existing customers and a digital advertising campaign.

11.2.1 Direct email marketing approach

Furbnow implemented a targeted direct email campaign to engage their users with an exclusive offer for the ivie Bud. The campaign leveraged Furbnow's existing customer base, focusing on users who have shown interest in home energy efficiency solutions. By using a personalised and data-driven approach, the campaign aimed to maximise engagement and drive sign-ups for the ivie Bud.

The email campaign adopted a strategic format, starting with an engaging subject line aimed at attracting attention and driving high open rates. The content within the email was straightforward, emphasising the main advantages of the ivie Bud, such as real-time energy monitoring, possible cost savings, and simple installation. Additionally, the email featured a clear call-to-action (CTA) to claim the ivie Bud, emphasising limited stock to encourage prompt responses. By strategically timing the emails and using A/B testing to refine messaging and CTA placement, Furbnow ensured that their campaign remained effective in capturing user interest. The results

of the campaign were continuously monitored, with metrics such as open rates, clickthrough rates, and conversions analysed to optimise future outreach efforts.

The campaign proved to be successful, with 100 of their users signing up to receive the free ivie Bud. Given the SME status of Furbnow, this is an excellent immediate return.

11.2.2 Furbnow Digital Ad campaign

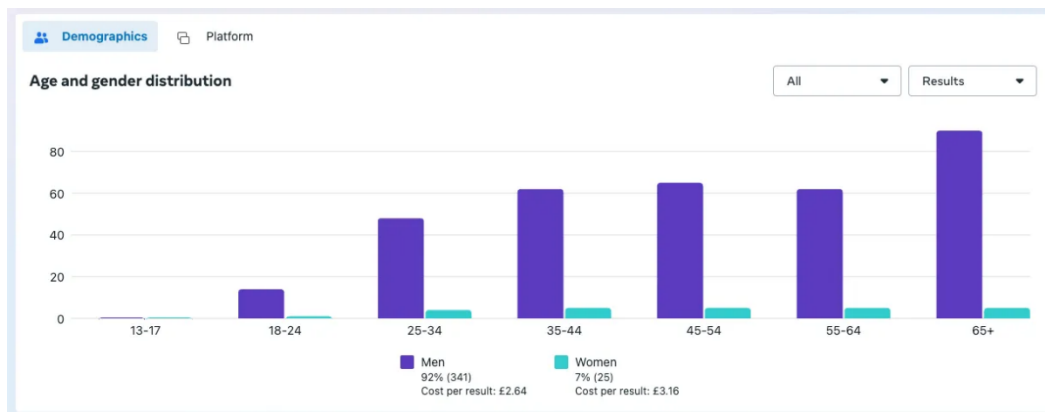
Furbnow launched a targeted advertising campaign using a digital platform to attract new users to their service, offering a free ivie Bud as an incentive. This provided a pathway into the customer journey with Furbnow and directed users towards the Chameleon solution for energy insights. The campaign capitalised on the platform's advanced audience targeting capabilities to reach individuals most likely to be interested in energy efficiency solutions, ensuring the adverts were seen by users who would find the offer relevant and valuable. It featured a variety of engaging adverts designed to capture attention quickly, with a strong focus on the free ivie Bud to stimulate interest.

To enhance effectiveness, Furbnow utilised the platform's audience segmentation tools to target specific groups, including homeowners, those interested in sustainability, and users who had previously engaged with similar energy-saving content. Lookalike audiences based on existing Furbnow users helped broaden reach to individuals with comparable interests, while retargeting ads reminded users who had interacted with the campaign but had not yet signed up.

The campaign employed a performance-driven strategy, optimising ad delivery based on real-time engagement data. A/B testing has refined creative assets, messaging, and call-to-action placements, to maximise exposure. A streamlined landing page facilitated a smooth conversion process, easy sign-up, claiming their free ivie Bud with minimal effort. By leveraging the platform's targeting, retargeting and compelling content, Furbnow's campaign successfully registered 438 users to receive the ivie Bud through this channel.

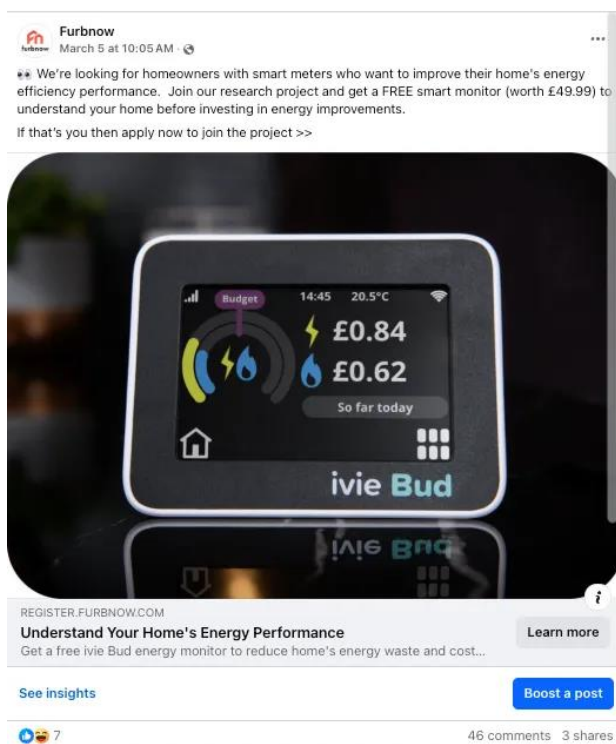
In terms of demographics, 92% of the forms were completed by men vs women with a mix of ages with the most popular demographic being men over 65 (*see Figure 6 Graph showing form completion demographics*).

Figure 6 Graph showing form completion demographics



Ads were tested on an all-female audience using both original and new creatives to assess whether messaging or design was driving the male-skewed engagement. However, lead costs were over three times higher than with a mixed-gender audience. The following advert (see *Figure 7 Image of an example*) had the best response among women, though the reasons remain unclear and are still under investigation.

Figure 7 Image of an example advertisement



11.2.3 Reflections on Furbnow results

The response to the Furbnow campaigns has exceeded expectations. A total of 538 ivie Bud devices have been dispatched to homes.

The more detailed response from the Furbnow campaign are:

- 538 ivie buds despatched
- 315 downloaded the ivie app
- 43 customers have a HTC score

The positive results show the advantage of offering an incentive and gift to engage users. While they have not yet progressed to taking up a finance product, they have begun to complete the challenges that help to identify suitable energy saving measures. Based on these insights, users can then choose whether to self-fund or pursue financing, guided by their own preferences and a clear understanding of their needs and potential savings.

As some customers are only starting to use the app quite late in the process, there will be a lag between the numbers joining the system and starting to make their energy saving choices, including following the rest of the journey to low carbon installations.

Furbnow's approach appears to foster greater trust, with users that are more likely to engage when receiving a direct email, recommending a relevant product based on their expressed interests. Offers from trusted partners are significantly more effective than generic promotions on a large company website.

When individuals actively express interest in a service — such as installation of low carbon technologies — they are more receptive to related follow-up offers such as home energy advice, particularly if they come from a known and credible partner within that ecosystem. This existing relationship creates a sense of relevance and continuity, making the offer more tailored and trustworthy. Building on established trust and interest increases the likelihood of conversion, as users feel confident that the offer aligns with their needs and comes from a reliable source.

12 Customer success metrics

The delays in the project meant there has only been a short amount of time to progress users through the full journey from identification to installations. The installations which have taken place have utilised the recommended installation services but have not needed to utilise the finance products on offer, instead preferring to self-fund. This challenge makes it difficult to determine whether the primary need was to support knowledge development and pathways to installation rather than addressing finance issues, or if there is an underlying reluctance to use finance for such investment decisions.

While the full installations have been limited, there has been a positive start to both customer journeys in the users who have joined the platform. Many have been undertaking energy saving challenges with a growing number starting to use the tools to assess their viability for more major upgrades.

A total of 350 users were recruited through the ivie app: 35 via NatWest and 315 via Furbnow. Of these, 43 users have sufficient data to generate a HTC Score.

The scores, when analysed, show that Furbnow customers are broadly aligned in profile to the full ivie base; however, the number from NatWest is too small to be statistically significant.

The tables below show the detail of HTC scores across all customers. The key points to be taken from this are the similarity in customer bases across ivie and Furbnow and this compares favourably with the UK as a whole.

According to a Citizens Advice report in June 2023, over 15 million homes in the UK are energy inefficient.⁴ As of 2024, there were 28.6 million UK homes in total, representing well over half.⁵ The data (see *Table 2 Heat Transfer Coefficient Scores across the three customer cohorts*) shows that our customer cohort is typically more energy efficient than the UK population as a whole. As a result, it was more challenging to create a compelling argument for small improvements, with only larger interventions — such as installing solar PV and/or heat pumps — likely to make a meaningful impact. These, however, involve a longer sales process.

⁴ Citizens Advice, “Home advantage unlocking the benefits of energy efficiency”, https://assets.ctfassets.net/mfz4nbgura3g/1BdF75gaZhUckTW3tJSZX7/42765cd0b403976c5e0461677246e242/Home_20advantage_20Unlocking_20the_20benefits_20of_20energy_20efficiency_20UPDATED.pdf

⁵ Office for National Statistics, “Families and households in the UK, 2024”, <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/families/bulletins/familiesandhouseholds/2024>

Table 2 Heat Transfer Coefficient Scores across the three customer cohorts

	All	Furnow	NatWest
Excellent	1278	17	0
Good	2726	23	3
Needs Improvement	259	2	1
Poor	20	0	0
Unable to determine	36	1	0

As part of the project agreement, it was possible to access more detailed information on the customers joining from Nat West. This data has been compared against the broader ivie customer base.

In terms of heating type, the NatWest cohort is broadly similar to the ivie base (see Table 3 Heating system type across NatWest and Ivie customer cohorts). However, if electric heating is assumed to include heat pumps, these figures appear disproportionately high compared to the ~260,000 UK heat pumps installed (1% of housing stock) as of October 2024.⁶ This is acknowledged to be based on a very small sample size.

Table 3 Heating system type across NatWest and Ivie customer cohorts

Heating	NatWest (n=21)	Ivie (n=35,880)
Electric	10%	10%
Gas	75%	70%
Both Gas and Electric	10%	16%
Other	5%	5%

EV Ownership

NatWest customers over-index compared to the ivie base, which itself exceeds the UK average EV ownership rate 4.78%.⁷

- **NatWest:** 28% ownership
- **ivie:** 10%

⁶ Renewable Energy Installer and Specifier, "2024 is UK's best year on record for heat pump installations", 25 October 2024, <https://renewableenergyinstaller.co.uk/2024/10/2024-is-uks-best-year-on-record-for-heat-pump-installations/> (speaking to the 260,000 heat pumps).

⁷ Zapmap, "EV market stats 2025", <https://www.zap-map.com/ev-stats/ev-market>

- **UK average:** 4.78%

Solar Ownership

NatWest customers again over-index against the ivie base, which itself exceeds the national average. According to the Sunsaver, more than 1.5 million UK households have solar panels — equivalent to 5.5% of the UK's 28.4 million housing stock.⁸

- **NatWest:** 28%
- **Ivie:** 10%
- **UK average:** 5.5%

The data shows that a notable proportion of customers engaged have already installed low carbon technologies. While this segment shows clear interest, further work is needed to understand how to reach the customers at the point where they are actively considering such technologies — using the right level of data and insight to support their decision making.

⁸ Sunsaver, “How many homes have solar panels in the UK?”, 14 August 2025,
<https://www.sunsaver.energy/solar-panels-advice/cities-and-regions/homes-with-solar>

13 Customer and behavioural insights

Extensive user research was conducted throughout the project, with a key study — HTC Research User Insights (April 2025) — focusing on user engagement with the HTC score tool and their broader retrofit journey. A questionnaire was sent to users of the HTC Screen and to users who had interacted with the Solar Journey tool. There were 4 responses for the HTC Tool and 124 for the Solar Tool. The research explored where are users in their home improvement journey. This included what improvements were already in place, motivations, experiences of the HTC score, appeal and ease of the score and any challenges.

Overview of Key Research Findings

Key research findings included:

1. **Widespread retrofit activity:** The majority of the participants have undertaken home improvement measures such as double/triple glazing and cavity wall insulation or loft insulation to increase the energy efficiency of their home.
2. **Limited short-term retrofit intentions:** Only a small proportion of the participants are planning for such measures in the next six months to three years.
3. **Online search as primary information source:** The majority of the participants found out about home improvement measures through online searches.
4. **Emerging interest in advanced technologies:** Some other home improvement measures that few participants are planning to adopt include heat pumps, solar, battery storage, triple glazing and underfloor heating.
5. **Moderate expectations of impact:** The majority of the participants expect a moderate impact of such home improvement measures on the energy efficiency of their home.
6. **Cost savings as primary motivation:** For the majority of the participants, the major reason for making these home improvements was to reduce energy bills.
7. **Suggestions for app improvement:** The majority of the participants suggested customisation, more educational content and enhanced notifications as improvements to the app.

Participant Perceptions of the HTC Score Feature

The following insights reflect participants' perceptions and experiences with the HTC score feature:

- **Universally useful:** All participants found the efficiency score tool useful.
- **Decision-making support:** The feature was considered particularly helpful towards informed decision-making.
- **Seasonal relevance:** Many participants indicated they would use it a few times a year, especially in winter.
- **Data trustworthiness:** Trust in the score was linked to trust in other app data, particularly when cross-checked with other sources.
- **Perceived value:** 63% of participants found the feature moderately valuable.
- **Behavioural impact:** 63% of participants are likely to complete recommended challenges to improve their heating efficiency as the next step after receiving the score — suggesting potential for increased app engagement.
- **Drivers of trust:** For most of the participants, the accuracy of energy usage data and clear and transparent methodology of calculations of the tool are the most important factors contributing to the trust in the tool.
- **Neutral trust levels:** 63% of the participants felt neutral in terms of trusting the score.
- **User satisfaction:** 50% of the participants were satisfied with using the feature.
- **Moderate advocacy:** The Net Promoter Score (NPS) score shows that the feature would be moderately recommended by the participants.

Barriers and Motivators to Low Carbon Technology Adoption

The following insights highlight the key obstacles and motivators influencing participants' decisions around adopting low carbon technologies:

- **High upfront costs remain the primary obstacle:** For the 18% of participants not planning to adopt low carbon technologies, the most cited barrier was the significant initial cost, suggesting affordability continues to be a key concern.
- **Uncertainty around return on investment (ROI) and installer trust:** Many participants were hesitant due to unclear long-term financial returns and difficulty in identifying reliable installers, pointing to a need for better and trusted provider networks.

- **Concerns about compatibility and incentives:** Additional barriers include worries about how well low carbon technologies will integrate with existing home infrastructure, scepticism about performance, limited government support, and doubts about whether their homes are suitable for such technologies.
- **Financial and environmental benefits drive interest:** The main motivators to adopt low carbon technologies were the potential for long-term financial savings, availability of government incentives, and the desire to reduce environmental impact.
- **Users seek clear, practical guidance:** When considering adoption, participants valued advice on available incentives, help with finding trusted installers, and practical guidance to choose the right technologies for their specific home needs.

Additional Research: Solar Tool and App Onboarding Barriers

Further research was also conducted to evaluate the solar suitability tool, which was introduced during the summer period before the HTC scores became available. This research echoed many of the same user concerns mentioned above.

In addition, the ivie app onboarding process was identified as a barrier and this was also explored through user research. Key findings included:

- **Address and MPAN validation is complex:** The process of validating a user's address and MPAN (Meter Point Administration Number) is inherently complicated, leading to frequent user errors.
- **Tariff entry is essential but difficult:** Entering tariff details is a critical step, but also complex. Data held on smart meters is not always kept up to date — especially in cases where users have switched tariffs without changing suppliers.
- **Account access issues are common:** Customers who may have an account in place with ivie often forget their log in details.

Following the feedback received, the onboarding process has been redesigned and is queued in the backlog for further development. Aside from making it easier for customers to join, one of the more interesting findings is the number of customers who are already on a journey to lower their carbon intensity with home improvements. When reviewing all 55,000 ivie system users, they over-index against the UK population in terms of low carbon technology adoption. As a result, ivie must focus on engaging a new user base to help drive the shift towards low-carbon heating, energy generation and transport. However, this also presents an

opportunity — existing customers that have already installed home upgrades are more likely to be more receptive to adopting further, new technologies.

14 Integration of government grants

The primary focus of the project has been identifying and communicating the right technology for the customer and supporting their decision making. In the main use cases, information about the Boiler Upgrade Scheme (BUS) and Home Energy Scotland programmes has been included and referenced within any advice of outline costings. Installers are also aware of the grants, and where they have assessed customer properties and costs, this information has been communicated, alongside any localised incentives and guidance on how users can access them.

There were no specific challenges encountered during this activity. The grant application process for the BUS funding was not integrated into the journey itself, as this was felt to be too complex and more manageable through direct installer support.

While no specific questions were asked about importance of government grants to support installations as part of this project, previous research with our customers shows that these incentives have a major impact on purchase decisions. With the upfront cost of a heat pump significantly higher than an equivalent gas boiler installation, many interviewees reported being unable to justify the costs of the heat pump choice without the grant.

15 Commercial viability

This section assesses the commercial viability of the overall concept, exploring its potential to scale beyond the pilot phase. Consideration is given to the sustainability of delivery models and partner roles.

15.1 Long-term vision for the product

Despite the low number of installations, the engagement of users who have joined the system in broader energy-saving measures suggests a promising opportunity to take at least some of the customer journey forward.

Chameleon and Furbnow intend to continue testing and progressing the customer journey to explore potential ongoing benefits. There is a clear opportunity to deliver value to customers by addressing the information and installation barriers through a joined-up service. These aspects of the customer journey will continue to operate, with customers referred to each service separately to test the difference in engagement between the more automated route and the softer referrals. It will be possible to create a commercial relationship through rewarding referrals, enabling both organisations to benefit from the increase in customers.

15.2 Unique selling points

While the whole customer journey encompassing insights, finance products and installation are distinctly unique, it is more likely that the next steps will focus on the 'insight to installation' segment. This still has distinctive elements and ensuring the smooth transition through the customer journey will be crucial. Ultimately, the proposition will be based on excellent advice and customer service, with a hassle-free route to understanding the right low carbon technology measures for them through to a high-quality installation. Signposting to finance options will exist, but it is likely that it will encompass a range of offers which might be more tailored to the needs than the loan product which was offered in this project.

15.3 Operational changes

To deliver the desired customer experience at scale, the interface will need to be upgraded to allow more seamless data exchange between systems, reducing the need for duplicate data entry. This will require changes to the user terms and conditions for both services, along with the option for users to opt-in to sharing specific information with a third-party in certain points in the user journey. It will also improve the overall user profile, making it easier to track uptake speed once purchasing begins.

None of these minor issues would impact the commercial viability. It will be relatively small changes for SMEs who develop their own software for a good potential return, meaning the barriers to progression are low.

15.4 Barriers to commercialisation

For the insights-to-installation user journey, there are no barriers to launching the live service. Most of the work is already in place, meaning commercialisation can commence as soon as the identified improvements — necessary for delivering excellent customer experience — are implemented.

Market access and growing customer numbers will be the biggest challenge to success. Both organisations continue to educate the market on energy savings and low carbon technology transition and attract a good proportion of interested customers. However, the greatest success will be getting those less familiar with the area to engage. It had been hoped that the customer numbers which NatWest could bring would help to fill this gap, but the project delays have impacted the ability to evaluate whether this will be a lucrative approach to market growth.

15.5 Impact of GHFA

The GHFA funding had a transformation impact on the opportunity to develop the HTC-Up solution. Without it, it would have been very difficult for the SMEs involved to engage a large bank and test a project with them. Similarly, it provided a platform for Chameleon and Furbnow to collaborate and create a customer journey which would have been delayed or taken far longer without the funding which could be used to implement this.

In normal circumstances, day-to-day business would take priority, and it would be harder to produce the required results. The project has allowed the consortium to test the uptake of elements of the customer journeys and optimise the performance of both individual and joint components of the system. This makes the final output far closer to being market ready than otherwise possible. The credibility that is provided by the project will help to attract customers and investors, who will have a proof point for the potential of the solution.

16 Final reflections

The project has delivered a wide range of valuable learnings, despite the delivery challenges faced. Integrating a user journey that helps homeowners understand how to make energy savings and the appropriateness of their home for low carbon technologies has addressed many user concerns and increased their confidence to explore further. Providing a solution to sourcing trusted installers helps to ensure consumers continue their journey and move towards the home improvements. HTC scores offer interesting potential in identifying the viability of a property to install a heat pump and for verification of installations.

The marketing approach to the services is vital for the effective engagement of customers. As expected, using tools to specifically target those who might be considering low carbon technology upgrades was found to increase the level of engagement with the service. To broaden the market, more will need to be done to help more people to understand the opportunities and savings offered by low carbon technologies. The advice service offers a tailored way to achieve this, but it is only helpful if potential customers are aware that it exists and are prepared to use it. Further testing of different marketing and engagement approaches will be undertaken based on learnings from this project to determine the optimal approach to reaching a wider audience.

On the finance specific element of the project, it is important to consider how best to overcome issues of recommending specific products or services based on FCA rules. While the principle is sound, it does mean that more of the service needs to be driven through the finance provider, which impacts opportunities for SMEs in their value chain. The complexity of launching bespoke finance products in large banks is a challenge, particularly in difficult market conditions. The HTC-Up approach does open opportunities for further testing though does come with complexities in larger organisations with competing priorities.

If the design and delivery process were started again, far more time would be given to the internal stakeholder management to ensure that all teams/departments in partner organisations were onboarded at the beginning. This undertaking would ensure there were sufficient senior team members in all organisations to help push through important decisions and approvals in a timely manner and ensure all legal processes were completed sooner. That would allow for more time to be made available to deliver and maximise project learnings.

The GHFA pilot has provided excellent insight into the barriers which users perceive in their journey to low carbon technology adoption and there is a real commercial

opportunity to join the insights and installation piece together in removing barriers. These form the basis of a valuable commercial service, which, with the right finance products available, could also be used to support those requiring finance to remove any final barriers.