



**Green Home Finance  
Accelerator Discovery  
Phase Evidence Report:  
Buy-To-Let  
Decarbonisation System**

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# 1 Executive Summary

## 1.1 Introduction, aims and objectives

The Department for Business Energy and Industrial Strategy conducted a consultation in 2021 into improving the energy performance of privately rented homes.

The consultation proposed to introduce new regulations to raise minimum energy efficiency standards for privately rented homes to EPC Band C from 2025 for new tenancies and by 2028 for all tenancies.

This proposal was a key motivator for undertaking this project, as it was clear that buy-to-let property owners were not suitably equipped with the tools they need to plan, deliver, and fund retrofits on their properties. However, during the project, the Government announced its decision to not introduce this regulatory requirement. Despite this, our research has identified a market demand without this regulatory pressure, and therefore an active market for our proposed solution.

This project brought together City Science, a specialist in digital energy efficiency, and Property Master, a mortgage broker focused on the buy-to-let sector. The project aim was to identify the key barriers for the buy-to-let market accessing the required retrofit finance, then use this knowledge to design a digital platform to allow customers to identify the retrofit package needed for their property(s), secure the necessary finance, source an installer, and monitor the energy efficiency of their portfolio. By seamlessly integrating energy efficiency analysis with the most appropriate portfolio-level financing options, we aim to simplify the process of upgrading buy-to-let properties.

This discovery project had a total project cost of £249,896 which was 80% funded by the Department for Energy Security and Net Zero as part of the Green Home Finance Accelerator programme. The remaining 20% of costs (£49,979) was funded by City Science and Property Master.

## 1.2 Key barriers and challenges

### 1.2.1 Regulatory Environment

At the commencement of the project, proposals to introduce higher standards for privately rented homes were not confirmed and Government had announced these would not go ahead by the end of the project with the existing E standard remaining. This regulatory uncertainty has resulted in a significant number of landlords taking a 'wait and see' attitude. This limited the number of landlords that were willing to actively engage with our Discovery work – resulting in a need for additional effort in completing user engagement activities and completing this over an extended timespan to reach meaningful conclusions.

### 1.2.2 Automated Approach

Our proposal to build a digital end-to-end service requires us to identify a practical and workable journey where each step can be significantly automated. This automation is key for our system to be commercially viable, as we need to be working at high volume (with low operational overheads) as the potential revenue from our service per landlord (or property) is expected to be low. To achieve system automation, we need to build functionality from open datasets and integrate with partner (including lender) systems.

We expect that a significant proportion of financing will be sought as further mortgage advances. The automated sourcing of further advances is not uniformly available from lenders. Some lenders provide bespoke product pricing and therefore brokers or landlords need to manually request mortgage quotes from their existing lenders. The small size and the high volume of these loans is expected to lead to high operational costs for lenders and brokers without generating any meaningful revenue. There is potential for us to work with the lenders and brokers to develop a solution that can work to reduce these operational overheads and giving landlords the required level of service.

We have used the domestic Energy Performance Certificate (EPC) dataset to prototype our neighbourhood analysis and EPC AI model. We have found that the dataset contains significant quality issues regarding how the descriptive fields have been generated and stored in the EPC register (e.g. inconsistent use of window/glazing/wall description; inconsistent concatenation and encoding of Welsh language descriptions). This poor data quality has led to significant additional effort during the discovery phase to perform data cleansing activities before we were able to assess the potential of our EPC calculator prototypes.

From engagement with landlords and training providers (Exeter College) it is perceived that with the amount of work needed there will be a shortfall of qualified installers to satisfy the demand for specialist retrofit activities (e.g., heat-pump installations) in the short term.

### **1.3 Key findings from research and other activities**

During the project, we identified that the expected policy requirement to improve EPC ratings to at least a C rating was the primary driver for landlords to take action; however, through engagement with landlords we have identified that there is still some demand for a service that will help them improve the energy efficiency of their properties despite there now being no policy driver.

We have seen that 70% of landlords have at least one property that falls below an EPC C. But 84% of landlords have no plan or have not made any meaningful progress to upgrade their properties.

Looking at landlord motivations, we have found that they are primarily interested in making only the minimum improvements required. For landlords with larger portfolios (who are generally considered as professional landlords), this motivation becomes more pronounced.

There is little desire to improve properties further than an EPC rating of C to help their tenants reduce energy bills and potentially allow higher rents to be charged. Landlords do not expect that they will be able to recoup further investment by charging higher rent for more energy efficient properties.

Surprisingly, when we enquired how landlords were expecting to pay for their green improvements, we see that 48% expect to use their savings; 33% expect that grants will or should cover some of the cost; and only 18% expect to take out additional borrowing on their mortgage. The reality of how current grants can assist landlords with green improvements is unclear and it may be that landlords are expecting additional subsidies to be announced.



As the majority have no plan for the upgrade of their properties, but 48% of landlords believe that they will be able to cover any work using savings, there is a concern that landlords do not truly understand the potential costs that are involved.

Despite evidence suggesting that many landlords do not anticipate taking action unless necessary (i.e. through a legal/regulatory requirement), landlord engagement has shown that landlords still see value in a tool to help them and many have indicated that they are willing to pay for it. This suggests that through the delivery of the tool, landlords may become more incentivised to take action as a result of having a clear and affordable mechanism of doing so.

## 1.4 Key process learnings

Conducting a Discovery Phase project with a narrow delivery timeframe is a challenging undertaking. We have found that bringing partners together with existing expertise and core capabilities is easier than building new relationships during a project.

Even where a project partner has existing public/consumer relationships, interaction with consumers is slower and more costly than we expected. We found that our landlord survey had a lower immediate response rate (which also highlights the lack of general engagement with the subject area), therefore surveys needed to be run over longer periods and having access to a sufficiently large audience is needed to be able to draw meaningful conclusions.

We were fortunate to have an audience of >10,000 landlords that allow marketing from Property Master, therefore with repeated digital mailings we were able to achieve an acceptable 128 responses.

We found that attempting to arrange our two virtual workshops to discuss how we can help landlords was also challenging. Even when offering a variety of timeslots (different days and at different times), we appeared to have enough participants accept their invitations to join market research sessions, but the rate of no-shows was greater than 80%. This was disappointing, but those landlords that did engage were very forthcoming with their views.

Engaging with lenders and related professional bodies was a positive experience for us due to our existing relationships and their own interest in the Green Agenda.

The overall timeline for the Discovery Phase of the project has been relatively short. The project started late due to the embargo preventing any announcements about the project. This in turn meant that meetings with landlords and partners had to be delayed. Coupled with the impact of summer holidays delaying meetings. In the future we might consider a more conservative approach (i.e., a larger time contingency for each milestone). Or, as we ended up doing for this project, we overlapped milestone work to start milestones early by taking initial outcomes from the previous milestone and then reviewing the work packages as the previous milestone completes. This made managing each milestone more complex, but it helped to successfully achieve each milestone overall.

## 1.5 Reflections on key outcomes achieved

Looking back at our Discovery Phase work, we have:

- Made strong progress understanding the motivations and expectations of landlords through surveys, workshops and 1:1 interactions. We assessed this target market and have seen that there is a clear demand for end-to-end assistance with energy efficiency improvements; however, the recent Government decisions not to introduce tighter minimum energy efficiency standards in the sector is discouraging landlords from taking immediate action.
- Investigated each of the key journey steps involved for our end-to-end tools by developing mock designs and testing these on target users and other stakeholders. This activity identified the importance of the tool being flexible to the needs of a variety of landlord types; from single property owners, to large professional portfolio landlords.
- Identified how we can use open public datasets to aid landlord on-boarding, such as the EPC database and Companies House. This will significantly reduce the barrier to uptake through automating time consuming on-boarding tasks.
- Developed a prototype EPC AI model to help engage landlords and to facilitate retrofit pathway creation.
- Reviewed our mortgage sourcing capabilities to better understand gaps regarding accurately sourcing further advances. For example, there are emerging green property improvement advance products available to owner occupiers, but not in the buy-to-let market. From discussions with lenders, it has been suggested that barriers to creating such products for the buy-to-let market include the lack of up-to-date information on energy performance of properties, and the challenges of verifying advances have been used for the purpose intended. We have considered how we can extend our existing criteria for these products, in particular to include Green eligibility rules (e.g. that funds will be used on pre-approved energy efficiency measures and/or low emission heating systems, and that these measures will have a measurable benefit).
- Developed a design for the tool to help landlords (both single property and large portfolio) through an iterative process of tool mock-ups, customer feedback, and design enhancements. This has provided us with a validated design to take forward to a build and pilot development phase.
- Identified options to help landlords identify installers and EPC assessors through engaging with accreditation providers and installers themselves. Options will include the ability to continue along the customer journey using their own installer(s), signposting to accredited installers in their area, or automated introductions to accredited installers.
- Undertaken a broad review of current grant availability and criteria to identify opportunities to integrate with our wider solution. For example, the integration of eligibility assessments and application population.

Overall, the project has enabled us to build a strong, validated proposition to take forward to a full solution build and pilot phase.



## 2 Product introduction

### 2.1 The problem and consumer value proposition

Like all property owners, buy-to-let landlords have a need to decarbonise the properties they own through a combination of energy efficiency measures and transitioning heating systems to low/zero emissions technologies.

Those that own their own home can access grant funding and specialist finance products (such as green mortgage advances), whilst social housing providers can also access significant grant funding (such as the Social Housing Decarbonisation Fund). However, this leaves the private rental sector (which represents 20% of households) with limited support in improving the energy efficiency of their properties.

Our service addresses this support gap by providing buy-to-let landlords with a single point of contact to fulfil their retrofit needs. Via a web browser and app-based platform, our solution will allow users to quickly populate their property portfolio and associated finance, utilising open data sources such as Land Registry, Companies House, and the EPC database. Once populated, users will be able to choose their desired outcome (e.g. an EPC rating, or emissions rate), as well as any budgetary constraints. The solution will then provide them with a tailored package of costed retrofit measures, specific to their property and desired outcome.

Uniquely, our solution will then match the cost of these measures to the most appropriate financing solution from a broad spectrum of leading providers. Our solution does not stop there, it then connects landlords to accredited installers in their area to carry out the retrofit work. Where the landlord's target outcome is a higher EPC rating, the solution will also incorporate a re-assessment of the property.

Throughout this process, the progress through the retrofit journey will be tracked within the platform, with users being able to see a snapshot of the energy efficiency (EPC rating and energy demand per m<sup>2</sup>) of their portfolio at any point in time. Tracking will be achieved through individual user logins, with input data being stored and the user journey being captured through the completion of key milestones.

Our solution will cater for a full scope of retrofit measures, including building fabric (e.g. internal/external wall insulation), low carbon heating (e.g. heat pumps), and on-site energy generation (e.g. solar PV).

This service will be provided in return for small value, but high-volume fees to the borrower, the lender, and to installers.

### 2.2 Incentivise and address consumer barriers to uptake

#### 2.2.1 Enabling Energy-Efficiency and Low-Carbon Heating

Delivered through a web-browser and mobile app, our product serves as a comprehensive platform that streamlines the process by:

- Automating the identification of the most appropriate retrofit measures for a property and/or portfolio, tailored to the landlord's requirements and limitations (e.g. desired efficiency outcome, budget, loan-to-value ratio). Measures would include both fabric retrofit enhancements and low-carbon heating systems.
- Matching the cost of retrofits with available grants and buy-to-let mortgage offers, and assisting in the application process.
- Seamlessly connecting landlords to retrofit installers who deliver the required services in their area.

### 2.2.2 Reducing Consumer Barriers to Uptake

During the Discovery Phase, we undertook extensive customer engagement to identify the key barriers to uptake. These barriers and how our solution proposes to address them are:

- **Complexity:** retrofitting properties can be complex and daunting. Our solution simplifies the process by providing clear recommendations and step-by-step guidance, making it accessible to users with varying levels of expertise. Recommendations will be bespoke to their property, providing confidence in their accuracy.
- **Cost:** Cost concerns often deter landlords from retrofitting their properties, with many believing it would be more cost effective to sell properties with low energy efficiency and purchase new ones that are more energy efficient – pushing the problem onto other landlords, or the owner/occupier market. We address this by guiding landlords through the financing options available to them at either a property or portfolio level, giving them confidence that retrofits can be affordable.
- **Uncertainty of Government Policy:** landlords communicated their hesitation in taking action until Government policy regarding minimum efficiency levels had been clarified. Whilst we cannot control Government policy, our solution is flexible to accommodate any desired outcome (i.e. any EPC or emissions level). Also, by providing our tool to the market, we believe it will enable Government to take bold policy decisions, knowing that landlords have the necessary tools to deliver.

### 3 General scoping research and other activities

#### 3.1 Initial research methodology, research and scoping activities

##### 3.1.1 Consumer Segment Analysis Approach

As a mortgage broker currently servicing the buy-to-let market, Property Master held a significant amount of background knowledge and experience of this sector. Our research supplemented this with qualitative analysis of available data sets and literature. This included the use of the following sources:

- ONS 2021 Census<sup>1</sup>. This was used to obtain insight into the number of households in England and Wales, the split of building typology (e.g., detached, semi-detached, terraced, flat), and the ownership status of these households (e.g., owned outright, owned mortgage, privately rented, social rental).
- Households & Dwellings in Scotland 2021<sup>2</sup>. This was used to obtain insight into the number of households in Scotland, and the split of building typology (e.g., detached, semi-detached, terraced, flat).
- Northern Ireland Housing Statistics 2020-21<sup>3</sup>. This was used to obtain insight into the number of households in Northern Ireland and the split of building typology (e.g., detached, semi-detached, terraced, flat).
- English Private Landlord Survey 2020<sup>4</sup>. This data was used to understand the most common size of property portfolios.
- Energy Performance of Buildings Register (EPC dataset)<sup>5</sup>. This was used to quantify the current EPC rating of rental properties, and the building typologies of rental properties.

In gaining this increased insight into key segments, we were able to validate the potential demand for our solution (through confirming there are a significant number of low efficiency rental properties), identify the different segments of our target customers (e.g. large vs small portfolio owners), and ensure our solution is tailored towards these segments.

##### 3.1.2 Consumer Research Approach

Building on this desktop research, we then conducted primary research through the use of a survey to private rental landlords. Property Master's existing contact base of over 10,000 landlords was utilised to promote this survey.

The aim of this survey was to understand the following:

- Additional characteristics to allow further segmentation

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<sup>1</sup> ONS. (2021). Population and household estimates, England and Wales: Census 2021, unrounded data. [online] Available at:

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/populationandhouseholdestimatesenglandandwales/census2021unroundeddata>

<sup>2</sup> National Records of Scotland. (2022). Households and Dwellings in Scotland, 2021. [online] Available at: <https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/households/household-estimates/2021>

<sup>3</sup> Department for Communities (Northern Ireland). (2021). Northern Ireland Housing Statistics 2020 to 2021. [online] Available at: <https://www.gov.uk/government/statistics/northern-ireland-housing-statistics-2020-to-2021>

<sup>4</sup> DLUH. (2022). English Private Landlord Survey. [online] Available at: <https://www.gov.uk/government/collections/english-private-landlord-survey>

<sup>5</sup> DLUH. (2023). Energy Performance of Buildings Data: England and Wales. [online] Available at: <https://epc.opendatacommunities.org/>

- Their awareness of EPC ratings
- Their plans for improving energy efficiency (if any)
- Whether they would find an online tool helpful to assess their properties, build an action plan and provide funding options.

### 3.2 Existing market solutions

Our solution is unique in its ability to deliver an end-to-end service specifically for the buy-to-let market, with no other provider delivering this level of service.

Potential competitors were considered during the Discovery Phase include:

- The **EPA Energy Star Portfolio Manager** is a benchmarking tool used to determine energy intensities and compare building energy performance to similar buildings, past consumption or a reference performance level. The tool provides organisations with measurable information on energy savings and greenhouse gas emissions reductions from commercial buildings. However, the tool only works for commercial properties, and provides no link to suitable financing options to fund retrofits.
- **Lloyds Bank Green Buildings Tool** is an interactive digital tool that can help building portfolio managers identify energy efficiency investments in their buildings, enabling them to see the current status of their buildings and the possible improvements to EPC ratings. The tool calculates potential savings by combining benchmark data from CFP Green Building's systems and the information provided about a building. The tool generates a dashboard which includes tailored recommendations of cost-saving measures that could improve the green credentials of a property and also provides live updates as measures are implemented. However, the tool is only available to Lloyds commercial customers, providing a barrier to its use. It also does not link retrofit pathways to specific financing options, with any future development in this area likely to be restricted to Lloyds products only.
- The **Energy Saving Trust** provide a simple energy saving tool to various high-street lenders (as a white labelled system<sup>6</sup>). This tool carries out a single EPC (energy usage/cost and rating) assessment with general suggested retrofit options. This tool is heavily focused on suggesting finance from the given lender. Despite the sound concepts of the tool, it misses key considerations that are needed for a tool that is right for a landlord, as well as the clear need to present financial options from all lenders in the rental lending sector. Our research shows that many landlords have multiple properties and therefore a tool needs to be able to manage their entire portfolio, which this tool is unable to do.

There are a number of tools for green home improvements that help with each individual aspect of the retrofit journey. However, they are not brought together in a guided end-to-end tool and they also are not focused on the particular needs/perspective of a landlord.

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<sup>6</sup> White label software is unbranded software that a company leases or rents from a vendor and then rebrands to sell or use as its own.

### 3.3 Customer attitudes

#### 3.3.1 Attitude to Adopting Additional Finance

The buy-to-let market is heavily reliant on finance (typically mortgages), with over 75% of private rental properties being mortgaged<sup>7</sup> with average loans or borrowing being £200,000.

Our survey asked respondents to record their expected methods for paying for energy efficiency improvements. 48% expected to use savings, 33% expected to use grants where available, 18% expected to take out additional property-secured borrowing, and 1% expected to utilise unsecured loans.

This demonstrates that at least 19% of landlords are expecting to utilise some form of financing product to fund retrofits.

#### 3.3.2 Support Consumers Value

Our survey asked respondents whether they would value an online tool that could assess the current state of the property, identify the most cost-effective retrofit measures to achieve their desired outcome, present suitable financing options, and provide introductions to installers. 94% of respondents confirmed they would value such a tool, with 66% of respondents stating they would be willing to pay directly for the service.

#### 3.3.3 Trigger Points for Considering Retrofit

At the commencement of the project, it was anticipated that regulation would be introduced to mandate that rental properties would need to achieve an EPC C or higher to avoid financial penalties. Through engagement with landlords, this expected regulatory requirement was a significant trigger point for landlords, with around 45% stating they were only interested in making the minimum amount of improvements to meet regulatory requirements. Interestingly, those landlords with more than 10 properties in their portfolio were more open to making retrofit enhancements beyond the minimum required.

Other motivations for undertaking retrofits include the potential opportunity to increase rental income and increase the value of the property. However, in respect to rental values, only 17% of respondents felt that they would have the ability to increase rental fees if their property was more environmentally friendly.

### 3.4 Size of market, customer profile and route-to-market

#### 3.4.1 Likely Size of the Market

2021 Census data tells us that 20.3% of properties in England and Wales are privately rented, which equates to 5 million homes<sup>8</sup>. The private rented sector is the fastest growing housing sector in the country and has doubled in size in the past ten years. Growth continues and, in some markets, e.g. London, it is estimated that as much as 40% of the city's households could be renting by 2030.

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<sup>7</sup> DLUCH. (2022). English Private Landlord Survey. [online] Available at: <https://www.gov.uk/government/collections/english-private-landlord-survey>

<sup>8</sup> ONS. (2022). Population and household estimates, England and Wales: Census 2021. [online] Available at: <https://www.gov.uk/government/publications/census-2021-first-results-england-and-wales/population-and-household-estimates-england-and-wales-census-2021>

Over the past 10 years there has been a significant shift in the number of landlords and the proportion of properties that they own. Many of those with one or two properties have chosen to sell. There has been a corresponding growth in the number of landlords with a portfolio of properties, which increases the complexity of finance solutions, but also presents an opportunity for new and innovative products.

Analysis of 4.8 million EPC records for residential rental properties shows that 48% are at a C or better with about 40% showing as a D and 10% as an E. 2% are F and G combined.

According to analysis conducted by Habito, the average cost of upgrading a house from an EPC D to C rating is £6,400<sup>9</sup>. This suggests the cost of retrofitting all privately rented homes in England and Wales to an EPC C is £17 billion.

As a conservative estimate, the cost of property analysis, retrofit planning and finance arrangement is likely to be in the region of 6% of the total retrofit cost - a potential market of £1 billion in England and Wales alone.

### 3.4.2 Routes to Market

Our solution has the opportunity to generate revenue through delivering value to a number of key market participants as follows:

- **Lenders**

Lenders are increasing the number of 'green' financing products in an attempt to decarbonise their loan-books. This trend is set to continue with increased regulatory pressure. Identifying suitable/relevant customers to purchase these finance products is challenging and can be expensive to administer. Our solution provides a platform for green finance solutions to be integrated, as well as managing the confirmation that lending criteria has been met (e.g. confirming that the funding has delivered energy-efficiency enhancements and even quantifying the carbon saving that has been achieved).

- **Brokers**

With the increased demand for energy-efficient retrofits and financing solutions, brokers are being approached to provide customers with advice. Brokers have voiced their concern that they do not have the knowledge or expertise to advise clients in this area. Our solution can be used by brokers to deliver this advice, with limited need for training.

- **Landlords**

Landlords often lack the knowledge and time deliver retrofits efficiently, with access to suitable finance being a key barrier. Our solution delivers a one-stop solution for landlords, enabling them to easily plan, implement, manage, and finance property retrofits.

- **Retrofit Installers**

Delivering energy-efficient retrofits is a rapidly growing market, with a number of small suppliers fighting to build market share. Our solution has the ability to deliver lead generation for surveyors and installers.

Our business model will generate revenue from each of these four market players through a clear value proposition.

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<sup>9</sup> Habito Hub. (2022). Don't underestimate the power of your EPC. [online] Available at: <https://www.habito.com/hub/article/dont-underestimate-the-power-of-your-epc>



### 3.4.3 Profile of Potential Customers

The English Private Landlord Survey 2021<sup>10</sup> provides valuable insight into the profile of landlords, and therefore our target customer base.

94% of landlords operate as private individuals, with 5% operating via a company, and 1% operating through a combination of both.

The median age of landlords is 58 years old, which is older than the median age of the general population. 63% of landlords are aged 55 or older, with these landlords representing 68% of all tenancies.

The survey also shows that 35% of landlords are retired, 14% are self-employed as a landlord, 30% being full-time employed, 15% being self-employed undertaking non-landlord activities, and the remaining 6% being a combination of part-time employed, company directors, students, unemployed, or full-time carers.

## 3.5 Impact of cost of living and energy price crisis

Landlords are already finding it tough to remortgage their properties at the end of their fixed deals due to higher interest rates and onerous affordability rules, which means they are already being forced to increase rents (or sell their properties).

Many landlords are unable to increase their borrowing due to these affordability rules and constraints on rental income, therefore they do not have scope to proactively consider retrofit improvements.

The affordability calculation used for buy-to-let mortgages is significantly different to the owner-occupier segment. With buy-to-let mortgages, affordability is calculated by combining a stressed interest rate (typically, 1 or 2% higher than the product rate) with an interest cover ratio (typically 125% to 155%) to check that there is sufficient margin from rental payments to cover mortgage payments, even when interest rates rise. In our current economic environment of higher interest rates, these affordability rules are becoming tough to meet without landlords raising rental income.

For landlords that have scope to afford further borrowing, high mortgage product fees and early redemption charge lock-ins mean that landlords will most likely wait for their fixed deals to end, so pushing any retrofit out for as much as five years unless a reasonable priced further advance or second charge loan is available.

Not all buy-to-let lenders offer further advance products, therefore if the landlord does not meet the affordability thresholds, they are effectively 'mortgage prisoners' and may be unable to find finance for several years for any retrofit improvements.

Landlords that are taking further advances using green products with attractive rates (some as low as 0%) need to be given careful mortgage advice as they may have a future affordability shock when they subsequently apply for a remortgage of the total of their underlying mortgage and the additional borrowing.

Some lenders allow landlords to directly apply for further advances without giving them advice that would highlight future issues. Brokers will not make enough revenue from procurement fees from these small further advances, so they may decline business from a

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<sup>10</sup> DLUCH. (2023). English Private Landlord Survey. [online] Available at: <https://www.gov.uk/government/collections/english-private-landlord-survey>

landlord or charge fees for advice – thus causing landlords to go to the lender without advice.

Lenders need to be able to give sufficient guidance to landlords to give them the confidence to undertake retrofit measures, and as a result, unlock the opportunity to provide additional finance to facilitate this. Automating the lending process is important so that it is cost effective for all parties involved.

### **3.6 Addressing these challenges/barriers**

Through Property Master's existing brokerage business, it has highlighted these issues during meetings with lender representatives.

Many lenders understand the concerns, but without strong regulatory motivation they are unable to obtain priority for internal project funding to make the technical and process changes that are required to solve these hurdles.

Within the private rental sector landlords are generally not concerned about energy saving benefits of improving their properties' EPC ratings. Tenants are generally responsible for paying utility bills. For holiday lets and houses of multiple occupation (HMOs), where bills are typically included in the rent, then landlords have terms within their tenancy agreements to recoup excessive usage.

Our research shows that landlords do not expect to charge higher rents for more energy efficient homes, as local market rates tend to be the key drivers for rental costs.

The biggest economic driver for carrying out EPC improvements is that if they don't then they will be unable to rent out the property, which means they would have to cover rental voids from their other income. Additionally, if a property doesn't meet the required rating to be rented out and a landlord attempts to sell it, then the market value for the property may be significantly lower – causing the landlord to potentially lose more capital than if they had carried out the improvements. Some landlords see this as a lose-lose situation and are selling poorly performing properties now before their value falls.

### **3.7 Factoring in potential future price fluctuations**

Our solution will be provided through a combination of a flat fee, or as a percentage of borrowing. Therefore, there is no need to factor in potential price fluctuations of either energy or installation costs.

### **3.8 Changes to initial target consumer groups**

Our initial target has been focused on the UK buy-to-let sector. It differs from the owner-occupied sector meaning that it is a valuable market in its own right. Therefore, this aspect of our focus is unchanged.

Regulations and finance options in Northern Ireland (NI) make it challenging for us to consider how we can include the NI rental market in our scope. The buy-to-let market in NI is much smaller and has some differences which make it more challenging:

- There is a Landlord Registration Scheme which all landlords are obliged to register with
- If the property is a holiday let then a certificate is required from Tourism NI

- Far fewer lenders are willing to operate in the NI market as they see it as higher risk which makes finding a suitable mortgage much more challenging especially if the house is of non-standard construction or the customer is a limited company.

Although NI EPC's are available individually via the Gov UK API (Application Programming Interface), the bulk dataset for NI is not available via the NI data portal. This makes delivering the richness of the solution which we are proposing for properties in England and Wales not possible for Northern Ireland. Should the Government choose to make this data available we could include NI within scope.

Mortgage financing across England, Wales and Scotland is generally considered to be comparable – same lenders and processes. But the distinct IT systems that manage EPC data in Scotland (and current proposals to update these systems) will inevitably reduce the priority to include Scottish properties and landlords as part of the proposed service.

### **3.9 Limited and targeted access to proposed solution**

The primary focus for our service was firmly positioned at buy-to-let properties in the private rental sector.

We foresee that the service can be extended for owner-occupiers (especially in England and Wales) as all the key datasets, processes and services are the same, however the focus of our solution will remain on the buy-to-let sector in the short term.

## **4 Relationship and partnership building**

### **4.1 Developing our knowledge base and establishing new relationships**

This project delivered a new opportunity for City Science and Property Master to collaborate for the first time. Through the delivery of this Discovery Phase, this relationship has strengthened, building a strong foundation for future collaboration opportunities.

The partnership between City Science and Property Master gave broad initial capability to understand domestic energy efficiency, the private rented sector and mortgage financing. As part of Property Master's business activities, they have various lender and broker relationships. Using their existing relationships has enabled the project to quickly identify adjacent teams within organisations that have responsibility for green agenda activities.

In recognition that our solution needs to incorporate accurate retrofit advice and interact with the retrofit supply chain, the project has also engaged with surveyors, installers, manufacturers, and accreditation providers. This has enabled a full scope understanding of the key market barriers and opportunities, and how our solution needs to interact/support each of the market players.

### **4.2 Relationships built and impact**

#### **4.2.1 Lenders & Brokers**

We have continued to engage with many lenders, including the two largest players in the buy-to-let market (Lloyds Banking Group & Nationwide), and broker organisations (such as the Association of Mortgage Intermediaries) to understand how we can influence and support the process of providing further advances. We see that the long-term relationships that brokers already have with landlords plays a vital role to empower landlords to understand their responsibilities and to sign-post them to services that can assist them.

#### **4.2.2 Installers & Surveyors**

We have engaged with national and regional installers to gain further insight into the key barriers facing the retrofit market, as well as identify opportunities for our solution to support them in acquiring customers. The knowledge gained from these interactions has helped shape our proposed solution through integrating the ability for it to deliver lead generation to this sector, whilst also providing customer protection through ensuring recommended installers have the necessary accreditations to undertake the work. This activity will ensure that our solution does not simply unlock the financing barrier and push the bottleneck further down the supply chain.

#### **4.2.3 Accreditation Providers**

The project engaged with TrustMark to better understand the accreditation landscape, and how accreditations can be used to promote high quality installations and protect consumers. These accreditation providers present an opportunity for our solution to integrate with existing open databases of accredited providers – ensuring our solution can introduce customers to high quality installers and surveyors throughout the UK. For example, both TrustMark and MCS provide an open, online database of accredited installers, along with their location and the services they provide.

### **4.3 Management of knowledge sharing between partner organisations**

The sharing of knowledge has been enabled through a robust collaboration agreement, that has allowed both partners to openly share findings without the fear of releasing commercially sensitive information.

The partners have shared knowledge through regular meetings, the sharing of research data and documentation, and the co-authoring of key reports and outputs.

Solution design has been undertaken collaboratively via design workshops, allowing for both partners to bring their specific expertise to deliver a robust customer proposition.

### **4.4 Barriers and challenges to forming new relationships**

Whilst we managed to engage with larger national/regional installers, we recognise that a significant proportion of the supply chain is made up of small companies or sole-traders. This Discovery Phase focused on engaging with the landlord community, with limited resources available to undertake comprehensive engagement with a representative sample of the supply chain. Gaining access to smaller companies and sole-traders is time consuming and therefore costly, with many having higher immediate priorities unless financially incentivised.

In future studies, it may be beneficial to partner with an organisation that have an active relationship with these organisations (e.g. TrustMark, MCS, or even a builders merchant), who can provide easy access to these market actors.

### **4.5 Knowledge and expertise gaps**

Our proposed solution seeks to utilise an AI EPC model to predict post retrofit outcomes with a high degree of accuracy.

Whilst we believe the level of accuracy this model will provide (within five Standard Assessment Procedure (SAP) points) is more than suitable for the proposed application, the accuracy level may be increased by incorporating a Reduced SAP or full SAP model into the modelling capabilities. This could be achieved through either partnering with an existing provider (e.g. Elmhurst) or developing our own model.

## 5 Finance product research

### 5.1 Key activities undertaken

Our approach initially consisted of engaging with landlords, as our primary target customer, to validate the value of our proposed solution capabilities. We also engaged with lenders, brokers, and the retrofit supply chain to further understand how our solution could interact with and benefit these market participants.

Utilising findings from this engagement, we then undertook a Technical Discovery work package, which explored the technical feasibility of delivering the capabilities desired by our target customers. This work validated that our proposed solution was technically viable and able to deliver the value demanded by our target customers.

Following this, we undertook a Design work package where we iteratively developed a wire-frame of our proposed solution, including the user interface and customer journey. This design was tested on target users to validate its ability to meet their needs and respond to key pain points. Feedback was then used to enhance the design.

### 5.2 Key lessons learnt

#### 5.2.1 Ease of Use

Our target customer base consists of a diverse group of users, from retired, single property owners, to younger, large property portfolio holders. This informed us that our solution needs to be intuitive and easy to use, whilst maintaining the key functionality required by all types of landlords. As an example of this, we identified that single property or small portfolio owners were more likely to engage with a mobile app-based system, whilst larger, professional landlords had more of a preference for a web-based platform that is accessed via a desktop or laptop computer. As such, we have ensured our solution can be delivered across both these platforms, with customers being able to swap seamlessly between both platforms.

For larger portfolio owners, the entering of property information was identified as a key barrier to commencing the customer journey. We therefore learned that our solution needed to facilitate the quick onboarding of customers through the use of open data-sets and auto-filling of property details. We have confirmed the technical feasibility of this through utilising the open EPC database, as well as Companies House data.

#### 5.2.2 Single Property and Portfolio View

As our target customer base is split between single property/small portfolio owners, and larger portfolio owners, our solution needs to be adaptable to both customer segments. In response to this, our design enables the customer to have a property or portfolio view.

#### 5.2.3 Grant Funding

Our consumer engagement identified a desire for customers to utilise grant funding as the first means of funding retrofits. However, there are very limited opportunities to receive grant funding for buy-to-let properties, with the only widely available scheme being grants issued under the Government's Energy Company Obligation (ECO) scheme, but to qualify, tenants must meet household eligibility rules.

Landlords are unlikely to know if their tenants meet these criteria without collecting potentially sensitive information, which acts as a barrier to uptake. Whilst there are very



limited grant opportunities currently, we recognise that this may change in the future, and therefore our solution needs to be able to adapt to these changes. We have therefore adapted our design to incorporate a grant eligibility step in the user journey. This functionality provides a more valuable customer proposition, and therefore increases the likelihood of user engagement. Once in the customer journey, they may find that they are not eligible for grant funding, but this will provide an opportunity for the solution to present alternative funding options which they may not have considered otherwise.

### 5.3 FCA Sandbox participation

This was not necessary as Property Master are already authorised by the Financial Conduct Authority (FCA) and have the necessary regulatory knowledge and expertise to bring our solution to market.

### 5.4 Key regulatory considerations

Most buy-to-let mortgages are unregulated and therefore do not fall under the scope of the FCA. Some landlords, for example those that have inherited property or have previously lived in a property that they are now renting, fall under a regulated approach as a Consumer Buy-to-Let. As an existing broker, Property Master has the permissions and expertise to provide advice in line with FCA requirements when this is needed.

Most lenders expect a broker to be FCA regulated whether the loan being provided is regulated or not. Furthermore, as a regulated entity, Property Master is required to abide by the new Consumer Duty regulations. The key elements of this regulation include:

- **A Duty to Act in the Customer's Best Interest:** This requires firms to consider customers' best interests and prioritise them in their decision-making processes.
- **A Duty to Exercise Care, Skill, and Diligence:** Firms are expected to exercise care, skill, and diligence in their interactions with customers, ensuring that the products and services offered are suitable for the customer's needs.
- **A Duty to Provide Information that is Clear, Fair, and Not Misleading:** Firms need to communicate with customers in a way that is clear, fair, and not misleading, ensuring that customers have the information they need to make informed decisions.
- **A Duty to Communicate in a Manner that is Clear, Fair, and Not Misleading:** This aspect is focused on how information is presented to customers, ensuring that it is communicated in a way that is clear, fair, and not misleading.

As such, our solution will need to conform to these regulations in the way it interacts and communicates with users.

## 6 Advice & information research

### 6.1 Approach to the provision of retrofit advice

The lack of clear, reliable, tailored advice is seen as a key barrier to the buy-to-let market and is a key motivator for the creation of our solution.

Whilst there are a number of services which offer energy efficiency and/or retrofit advice, many are tailored to the owner occupier market and are often not tailored to the specific property or the owner's financial situation or motives. Our solution significantly enhances the quality of retrofit advice, by providing an easy to access, fully tailored solution. Additionally, by integrating the matching to grant funding and loan finance, and the seamless introduction to installers, our solution's advice does not stop at the retrofit, but supports customers throughout the entire process.

Retrofit advice will be independent and evidence based. The solution will capture baseline data about the property, including open data sources such as the EPC register. This will enable a tailored package of recommendations to be provided based on the customer's desired outcome and their financial constraints. This analysis can also be combined at a portfolio level to identify financing opportunities that would not be available at a property level. To ensure the retrofit recommendations achieve the desired outcome, the solution will utilise a new innovative 'black-box' model to optimise the package of measures, validated by an in-house SAP model. This will provide customers with highly accurate advice, both in terms of energy efficiency outcomes and capital cost.

This approach does rely on data collected from a property's EPC, which could be out of date, or inaccurate (due to the subjective nature of some elements of the reduced data SAP (RdSAP) inputs which calculate it). To combat this, our solution provides the opportunity for landlords to update information about the property (for example, if it has had double glazing installed since the latest EPC was conducted) to ensure the baseline assessment is as accurate as possible, without incurring significant costs. In addition to this, our proposed solution will have the ability to conduct a free 'EPC Audit', which will compare the EPC rating to other properties of a similar age and typology to identify if it is considered an outlier. In this instance, the customer would be advised to commission a new EPC assessment (which can be arranged within the platform).

Alternative methods of capturing accurate information about the current state of the property included the use of a more detailed in person survey, or the use of technology to capture temperature and energy use data to model building performance. Whilst both methods may lead to increased accuracy, it was concluded that the cost of using these methods would not be accepted by the customer (assuming the cost is passed on), or result in a loss making operation if the cost was absorbed by the service provider. In the case of a more detailed home survey, quotes from suppliers ranged from £400 to £1,400 per survey. For the installation of hardware to collect temperature and energy use data, costs range from £300 to £1,000, depending on the specific hardware configuration and method of transferring data.

As such, our proposed solution balances an accepted level of accuracy, with a cost base that will enable the solution to be delivered at scale.

## 6.2 Reason for selecting this approach

This approach has been selected as we believe it delivers the following benefits to consumers:

- **Convenience:** Landlords often have busy schedules, and managing multiple service providers for retrofit projects can be time-consuming and overwhelming. A single solution simplifies the process by offering all the required services under one roof.
- **Streamlined Process:** A comprehensive solution streamlines the entire retrofit process, from initial assessment and financing to project execution and completion. This eliminates the need for landlords to coordinate between multiple providers and ensures smoother project management.
- **Expertise:** The solution brings a broad spectrum of expertise into a single solution, including energy efficiency advice (imbedded into the automated retrofit recommendations model), financing (utilising Property Master's existing brokerage expertise), and construction (through integrating accredited installers).
- **Cost Savings:** By offering a complete package of services, the approach may be able to achieve better rates with installers and financing providers when operating at scale. This can result in cost savings for landlords, making energy efficiency upgrades more affordable.
- **Tailored Service:** The solution will provide personalised retrofit recommendations and financing options based on the property's unique characteristics and the landlord's preferences.
- **Risk Mitigation:** The solution can help landlords navigate the complexities of retrofit projects, reducing the risk of errors or problems that could arise when dealing with multiple service providers independently.
- **Access to Multiple Financing Options:** The solution will offer a range of financing options, including grants, secured loans, and unsecured loans, allowing landlords to choose the most appropriate financial solution for their budget and long-term goals.
- **Quality Enhancements:** Through pre-vetted installers and contractors, it will ensure that landlords are connected with reliable and experienced professionals.

## 6.3 Consumer preferences relating to advice and information

From engagement with consumers, we have identified a number of key preferences to accessing advice and information. These include:

- **Clear and Accessible Information:** Consumers prefer easily accessible and straightforward information about retrofitting options, energy efficiency measures, and available financing solutions. This information should be provided in easily understandable language, aimed at a non-technical reader, without the use of jargon.
- **Unbiased Advice:** Consumers often value advice that is free from any commercial bias. They want to know that the recommendations they receive are based on what is best for their specific property and needs rather than what generates the most profit for the advisor. Utilising the existing broker relationship is a key opportunity to deliver this as they are often seen as a trusted advisor.
- **Customised Solutions:** Consumers appreciate advice that is tailored to their property and situation. They want recommendations that consider the unique characteristics of their homes, such as size, layout, and existing measures.
- **Energy and Cost Savings:** Many consumers prioritise information that highlights the potential energy and cost savings associated with retrofitting. They want to understand how these investments can lead to long-term financial benefits.

- **Government Incentives and Grants:** Consumers often seek information on available government incentives, grants, and tax benefits that can help offset the cost of retrofits. They want to be informed about eligibility criteria and application processes.
- **Financing Options:** Consumers are interested in a broad variety of financing options, including conventional mortgages, green mortgages, and mortgage advances.
- **Case Studies and Examples:** Consumers find it helpful to see real-life examples of successful retrofit projects. Case studies that showcase before-and-after results, cost savings, and customer experiences can be persuasive.
- **Ease of Application:** Consumers want information on the application process for financing and retrofit programs to be simple and well-explained. They appreciate resources that guide them through the application steps.

## 6.4 Integration of advice and information with finance product

Within the private rental sector, mortgage finance is predominately conducted through brokers. We see that brokers will need to have a greater awareness of energy efficiency retrofits and technologies so that they can understand the landlords' intentions when requesting finance. We strongly believe that brokers should not provide advice on what retrofit activities a landlord should undertake, but help them understand what activities are eligible for a given mortgage product.

The Green Finance Institute has published a handbook<sup>11</sup> to support brokers in the role that will be laid upon them. This support for brokers will enable them to meet recently enacted Customer Duty rules set out by the FCA to ensure that any financial product that they recommend meets the needs of the landlord.

We do not believe that landlords will use lenders as the first point of call for energy efficiency advice.

Through our engagement with the Association of Mortgage Intermediaries, we have identified an opportunity to position our service such that brokers are happy to refer landlords to the service. Brokers will have concerns that by referring landlords to another party, they will lose potential business. We have considered how we can resolve these concerns within our wider service design. This will be achieved through integrating a referral system within the solution so that users accessing the system can be linked to the broker making the referral. One method of achieving this is the broker providing its customers with an access link that is dedicated to that broker, allowing the system to identify the source of the referral. The system will then be able to monitor and report on the revenue generated from customers introduced, allowing for a referral commission, or profit sharing arrangement to be delivered.

## 6.5 Own advice provision vs signposting to third party advice

The advice provision provided by the existing Energy Saving Trust website has a broad range of accessible advice. Similarly, the online tool that is provided on the GOV.UK website has some straightforward and accessible advice. Both resources are good for a homeowner looking to save energy through reducing heat loss and choosing energy efficient products.

The landlord has a very different objective. As they typically do not pay for the cost of energy (as this falls upon the tenant), energy cost reductions are not their primary

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<sup>11</sup> Green Finance Institute (2023). Broker's Handbook on Green Home Retrofit Technologies. Available at: <https://www.greenfinanceinstitute.com/wp-content/uploads/2023/02/GFI-Brokers-handbook.pdf>

motivation. This radically different mindset requires advice to be framed differently from existing tools. For example, the messaging should focus less on the potential energy savings, and more on the potential asset value protection and rental yield improvements from making the property more appealing to renters.

Therefore, we strongly believe that our proposed service will focus on providing targeted advice and clear recommendations that demonstrate to landlords how they can attain their desired outcome in the quickest and cost-efficient manner. In particular, our offering will differ to existing offerings by:

- Being designed specifically for landlords and therefore focusing on the outcomes that matter to them
- Allowing baseline property information to be updated, rather than relying on static EPC results
- Automating the population of property and portfolio details to accelerate users to the advice stage.

## 7 Verification methodology research

### 7.1 Proposed approach

Through customer engagement during the Discovery Phase, landlords indicated that the most common objective was an increased EPC rating; either to fulfil future regulatory requirements, or to increase property value. This provides a valuable opportunity for the proposed user journey to incorporate an installation verification step into the methodology.

Upon completion of the retrofit works, the solution will incorporate a re-assessment of the EPC rating using an independent in-person survey. The results of this survey will be provided to the customer but will also be provided to us as the solution provider. This data will be used for two purposes:

1. It will be used to verify that the installation has been completed correctly and in line with the recommended package of works.
2. It will be used to validate the accuracy of the retrofit recommendations model, allowing for continued enhancements.

Additionally, the solution will seek to limit low-quality installs through only recommending high quality, accredited installers. This will be achieved through the use of open-source installer data from credible accreditation providers such as TrustMark and MCS.

### 7.2 Reason for choosing this approach

This approach was selected as it delivers verification and quality assurance in a cost-effective, seamless way. It also enables a continuous feedback loop to iteratively enhance our solution, and therefore increasing accuracy over time.

An alternative approach would be to conduct on-site audits that can be delivered by organisations such as TrustMark, however these are considered too costly for the majority of customers. However, there is the potential to utilise these audits on a sample basis, or where adverse feedback has been received from customers.

### 7.3 Research findings that informed design choices

Utilising an EPC as part of the verification and quality assurance process is considered both proportionate and well-suited to the retrofit measures that are likely to be undertaken. In forming this conclusion, the following aspects were considered:

- EPCs provide a standardised method for benchmarking a property's energy performance and follow a well-established methodology (Reduced data Standard Assessment Procedure)
- EPCs are already required by landlords in order to rent out their properties. Therefore, this approach delivers quality assurance, whilst also fulfilling a regulatory requirement
- EPCs do not prescribe specific technologies, but rather assess a building's overall energy performance. This approach allows property owners to choose technologies that suit their budget, needs, and preferences.

### 7.4 Research findings about integration with the rest of the consumer journey

As part of our service, we would monitor the EPC register for revised certificates and allow landlords to record expenditure against each property. These capabilities will be key for landlords that have multiple properties so that they can maintain their retrofit history.



## **7.5 Steps identified which could minimise the risk of fraud**

There is a clear opportunity for installers and landlords to provide fraudulent invoices and proof of works. However, the current rules regarding EPC assessments require that an assessor physically visits the property to give evidence of retrofit activities before a new EPC assessment can be generated.

The EPC certificate is considered proof of eligibility for mortgage finance and local council licensing.

It is accepted that there is a risk of fraudulent EPC completion (i.e. the assessor is incentivised to manipulate the results for financial gain), but this risk is considered low. In the event this is identified by the assessor's accreditation provider (e.g. Elmhurst), they risk their accreditation being withdrawn.

## 8 Marketing related research

### 8.1 Research findings related to consumer marketing preferences

Buy-to-let consumers have specific marketing preferences when looking to finance their investment properties. From engagement with target consumers, we learnt the following:

- **Competitive Interest Rates:** Buy-to-let investors are typically motivated by profit, so they are particularly interested in competitive interest rates. Marketing that promotes access to the best rates is likely to be received positively.
- **Flexible Terms:** Some investors prefer finance with flexible terms. This flexibility can help them adapt to changing market conditions, cash flow, and new investment opportunities. Marketing that can highlight this as a possibility could be beneficial.
- **Quick Approval Process:** Investors often want a fast and efficient approval process to seize investment opportunities promptly. Solutions that advertise the ability to expedite the application and approval process may have a competitive edge.
- **Online Tools and Resources:** Investors appreciate easy access to online tools and calculators. Promoting this aspect of the solution has the opportunity to attract a large number of customers.
- **Customer Support:** Responsive and knowledgeable customer support is valued. Investors need to be able to contact the broker for questions or assistance, especially when their specific needs are complex. Advertising the ability to self-serve, but having direct access to an advisor if necessary, could be a valuable proposition.

### 8.2 Development of marketing strategy/approach

At the commencement of the project, it was anticipated that the sole marketing strategy would be direct marketing to consumers. However, through engagement with the Association of Mortgage Intermediaries, we identified the opportunity to market the solution via other brokers who do not have the tools or experience to provide retrofit advice to their existing or growing customer base. We have therefore evolved our marketing strategy to actively engage and collaborate with other brokers to utilise their network of customers to acquire customers.

This approach will involve the promotion of our solution amongst this community, with the potential offer of introduction commissions or profit-sharing arrangements on revenue generated from introductions.

## 9 Future plans for green home finance

### 9.1 Using lessons learnt to further develop our solution

The Discovery Phase incorporated extensive customer engagement. This has enabled us to develop and refine a strong customer proposition, as well as a detailed design of the proposed solution. This has been validated by target customers and is ready to be taken forward to a solution build and pilot phase.

As part of this engagement, we have also gained a better understanding of our target customers' key motivations and trigger points, which will enable us to construct a targeted marketing strategy which appeals to our customer base.

### 9.2 Applying lessons learnt to our organisations' approach

One of the key lessons learnt is the power of collaborating with partners that have diverse skill sets and experience. Some of the key benefits observed include:

- **Access to expertise:** Partnering allowed us to utilise the specialist knowledge and expertise of both organisations. For example, Property Master brought its extensive brokerage expertise and experience of the buy-to-let market, and City Science brought its technical expertise in building performance modelling and experience of working with the retrofit supply chain.
- **Faster development:** Collaboration led to faster development and innovation through pooling efforts, sharing insights, and avoiding duplicating work, resulting in quicker progress.
- **Risk mitigation:** R&D can be risky, as there's no guarantee of success. Partnering allowed us to mitigate this risk by sharing the burden and spreading potential losses.
- **Access to a broader network:** Partnering expanded our network and connected us with a broader range of stakeholders, including customers, suppliers, and other industry players.
- **Regulatory compliance:** Due to the need for FCA compliance, it was hugely valuable to City Science to partner with Property Master who already held the necessary FCA approvals to provide our proposed solution. Without this, there would be significant extra cost in obtaining approval and upskilling staff in this area.

As a result of these learnings, we will continue to seek opportunities for partnership when developing green home finance products and services in the future.

### 9.3 Using learnings to disseminate learnings

The learnings obtained through the Discovery Phase have provided validation that there is a commercially viable opportunity for our proposed solution, with clear customer demand. It has also enabled the development of a detailed design of the solution.

### 9.4 Key challenges and barriers to future development

Despite the Discovery Phase evidencing the commercial and technical viability of our proposed solution, there are still challenges or barriers to its deployment and scalability. These include:

- **Funding.** To deliver the build and pilot phase of work, additional funding will be required as there is a need for up-front investment to build and test the digital tools, as well as deliver the go-to-market strategy.

- **Regulation Uncertainty.** Throughout the Discovery Phase, we experienced a changing regulatory environment. At the commencement of the project, it was anticipated that landlords would need to achieve an EPC C grading by 2025. This was then anticipated to shift to 2028, before ultimately being removed completely by the end of the project. This uncertain and shifting regulatory environment makes it challenging to assess market demand and commit to investing in new products and services.
- **Cost of Borrowing.** From engagement with landlords, it is clear that some are considering selling their properties due to increased borrowing costs significantly reducing their return. Not only does this have the potential to reduce the number of customers we can target, but it also reduces appetite for landlords to take on additional borrowing.