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Lessons from existing retrofit one stop shops in the UK and Europe: business model and governance design

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Lessons from existing retrofit one stop shops in the UK and Europe: business model and governance design

Emerging findings

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Contents

1. Introduction 1

2. Research Overview 2

2.1. Research Aims and Objectives 2

2.2. Report Outline 3

3. One-Stop-Shop Approaches 4

3.1. Delivery models 4

3.2. Value proposition 5

3.3. Financial sustainability 6

3.4. Whole house retrofit vs. step-by-step approach 7

4. Governance and Risk 8

4.1. Governance and legal structures 8

4.2. Supplier appointment and liability 9

4.3. Organisational aims and objectives 10

4.4. Data governance 11

5. Retrofit installers and engaging the supply chain 12

5.1. Supply chain barriers 12

5.2. Developing and engaging the supply chain 13

6. Customer service and engagement 14

6.1. Initial advice 14

6.2. Advice to installation: conversion rates 15

6.3. Governance models and customer engagement 15

7. Considerations for the PRS 17

7.1. Defining ‘landlords’ 17

7.2. Landlords with properties spanning multiple local and combined authorities may face inconsistent procedural requirements 18

7.3. Management Information System (MIS) for Landlord Engagement 18

7.4. Lack of landlord engagement 18

7.5. Landlord choice 18

7.6. Housing quality in the PRS 18

7.7. Landlord motivations 18

7.8. Whole house retrofit vs. step-by-step approach 19
7.9. Timelines and preparation for retrofit work 19
7.10. Total cost of occupancy 19
8. Considerations for setting up the Let Zero OSS in South Yorkshire 20
Appendix 1: Methodology 22
Appendix 2: OSS business models 24
Appendix 3: Summary of OSS approaches 25
References 26

1 Introduction

Let Zero is a project focused on tackling poor housing conditions in the Private Rented Sector (PRS), including damp and mould and high carbon emissions. Funded by Innovate UK, the project is led by South Yorkshire Mayoral Combined Authority (SYMCA) and brings together a consortium of expertise to develop an AI-enabled, end-to-end retrofit support service tailored to PRS landlords and tenants. The project aims to create a trusted pathway for property upgrades through establishing a one-stop-shop (OSS) service that will support landlords and tenants improve property energy efficiency and enable local authorities to address fuel poverty. Scalable solutions will benefit both South Yorkshire and beyond to support PRS households across the UK, which currently make up 19% of the housing sector (DLUHC, 2023).

The Centre for Regional Economic and Social Research (CRESR), Sheffield Hallam University is a project partner. CRESR's research for the Let Zero project aims to embed real-world knowledge and practice in the design and delivery of the Let Zero OSS by providing research insights relating to the governance of PRS retrofit in South Yorkshire. Throughout our report we blend the voice of our participants with insights from across the literature, reflecting our commitment to practice-led research.

This is the second report produced by CRESR for the Let Zero project. It builds on the findings of our first report, titled: *One-stop-shops as a model for home energy retrofit: An initial review of the literature.* This semi-systematic literature review identified different business models for One-Stop-Shops (OSSs) (see for example, Bagaini *et al*., 2022, and appendix 2); key considerations for OSS design, such as creating favourable supply side conditions (Pardalis *et al*., 2021); and an overview of the regulatory and policy environments that support OSS development (Copiello *et al*., 2024). The review also highlights barriers to OSS development, including increased expenses incurred in exchanging goods and services, known as transaction costs, associated with delivering retrofit through OSSs (Pardalis *et al*., 2021). In this second report, we present our initial research findings on the governance of retrofit OSS services, based on research with existing OSSs in the UK and EU. We draw on the OSS literature review where relevant to supplement our empirical research findings.

Research Overview

2

Our qualitative research aims to contribute to the evidence base for developing a retrofit OSS service for South Yorkshire's Private Rented Sector (PRS). It draws on desk-based research on 51 retrofit OSSs and providers, and in-depth interviews with 15 retrofit services across the UK and Europe (41 providers were invited to interview, a 37% response rate). 11 of the retrofit services were based in the UK, and 4 in European cities. Only one service had landlords as their primary target customer, reflective of both the limited number of PRS-specific OSS services operating across the retrofit sector, and aligning with literature that highlights a clear gap and pressing need for PRS-tailored OSS retrofit provision. The **full methodology is detailed in Appendix 1** and contains details of the mapping exercise of retrofit services, the full selection criteria for inclusion in the research, and the topics covered during the interviews. While many respondents did not describe their service as a OSS, our selection criteria included services that provided integrated retrofitting services (i.e. more than just advice or installation). We use the terms retrofit service provider and OSS interchangeably throughout the report to describe this.

2.1. Research Aims and Objectives

The aim of our research is to examine existing and potential OSS approaches to retrofit services through analysis of different approaches taken and stakeholder perspectives to embed real-world knowledge and practice in the design and delivery of the Let Zero OSS. This report provides findings against the following research objectives:

1. To investigate the existing policy, funding, and social landscape for OSSs for the PRS and map exemplar initiatives across the UK and key EU cities.
2. To examine the perspectives of OSS service providers as key stakeholders to embed real-world knowledge and practice in the design and delivery of the OSS, and to produce an effective governance model for implementation.

For this report we specifically set out to answer the following questions:

1. What different types of service exist? (e.g. length of operation, funding models, delivery record).
2. What different governance models have been adopted and how does this shape service provision?
3. How do OSSs approach customer engagement and customer service?
4. How do OSSs engage with the retrofit supply chain?

2.2. Report Outline

The main body of the report presents our findings (Sections 3 to 6). It begins by outlining the overall approaches that retrofit service providers and OSSs take to delivering retrofit (Section 3). It then examines the governance structures and legal structures of the various retrofit service providers and implications for service delivery (Section 4). Following this, it explores considerations for engaging the supply chain (Section 5) and the barriers and opportunities for customer engagement (Section 6). In the final sections, the report provides a focused roundup of key considerations – Section 7 outlines additional challenges and considerations for effectively engaging the PRS in retrofit, and Section 8 highlights the key learnings that can inform the development of the Let Zero OSS in South Yorkshire.

3 One-Stop-Shop Approaches

SUMMARY

Respondents emphasised a need for impartiality and independence of the service, resulting in few services offering direct retrofit installs to avoid undermining their impartiality. Services also demonstrated impartiality by offering compliance checks and quality assurance.

Services had a range of income streams including surveys, design reviews, technical compliance checks, co-operative membership income, grant funding. Direct installations were rarely an income stream for those working in the able-to-pay market.

This section provides an introductory overview of the approaches taken by the retrofit service providers interviewed. We explore their delivery models, what they consider the greatest added value their service provides to its customers, their approaches towards reaching financial sustainability, and their stance on whole house retrofit vs. step-by step approaches. Specific considerations for a OSS for the PRS are raised in Section 7.

3.1. Delivery models

Through the mapping exercise and interviews (see Appendix 1), we found that while a range of approaches to delivering retrofit services exist for able-to-pay homeowner markets, the majority offer advice, coordination, and quality assurance services rather than direct installations. Services fall into three categories of delivery model (Bagaini et al., 2022).

1) Facilitation Model [1 service]

The service provides support for accessing the information required to deliver retrofit, but with no fixed partners. This can include technical information and advice about financing retrofit for example.

2) Co-ordinaton Model [12 services]

The service operates in collaboration with other market players to support homeowners along the whole energy home renovation process. However, it doesn't have integrated retrofit installation.

3) Development Model [2 services]

The OSS offers all services needed for energy home renovation under its name and responsibility. This is also described as the 'all-inclusive' model (see Cicmanova *et al.*, 2020; Appendix 2).

Most services follow the coordination model (see Table 1, Section 4.1) - this includes the one service we interviewed that was directed towards landlords specifically. Unless they deliver large scale, grant-funded work, few of the services offer retrofit installations, the reasons for which are discussed in Sections 4 and 5. Services typically began under the facilitation model and gradually expanded their service offerings as they became more established, responding to emerging demand or where gaps were evident in their provision.

3.2. Value proposition

Barriers to retrofitting include financial, informational and decision-making challenges. OSSs aim to remove these barriers by offering integrated services and guiding customers through the renovation journey (Bertoldi et al, 2021). In line with this, respondents shared that OSS and retrofit services add the most value by **providing impartial advice and overseeing installations**. This directly addresses the key challenges as highlighted by Bertoldi *et al.,* (2021).

Providing an independent and impartial service is core to the services in our study, and central to **adding value to customers on first contact**. There are two elements to this: (1) offering impartial advice to build customer trust - making it clear that they are not diagnosing a problem and simultaneously selling a solution, and (2) ensuring that they are not *'marking their own homework'* [ID07UK] for quality assurance. As a result, very few services directly carry out retrofit installations, or even actively recommend suppliers, to avoid compromising their impartiality (also see Section 4.2). Instead, most services provide advice, surveys, design and coordination (see full list of approaches respondents shared in Appendix 4).

Many UK-based services licensed the Carbon Co-op's Home Energy Model to deliver surveys and retrofit designs to customers. However, there are some concerns that the report generated is long, takes a lot of time to complete and is not always valued by customers. Simplifying reports or using in-home walk throughs to share the information is preferred.

Services also add value to customers by **overseeing retrofit installations via regular site visits**. This allows the retrofit service provider to play a key role in signing off on work and ensuring that installations follow their agreed retrofit designs, thereby ensuring customers only released funds on completion of compliant works. In doing so, retrofit services tend to follow the *'spirit of PAS 2035'* [ID07UK] for able-to-pay customers, even when it was only a requirement for grant-funded work to be lodged with Trustmark.

> *"Part of our oversight is making sure financial transactions happened at the right time. And it's not because we don't trust anybody, it's just that it's arguably one of the most important elements of the construction work is the finances. We'll set out milestones in the construction phases and say this is a point we need to come and inspect… We don't want a customer to give up funds when something isn't complete or hasn't been done correctly because once those funds have gone, it's pretty much a one-way street."* [ID01UK]

This approach builds customer trust and safeguards the independence, and therefore reputation, of the service. Several services also offer technical compliance services to local authorities and other grant-funded schemes, which also provides a further income stream (see Section 3.3).

While OSSs report a large appetite for retrofit advice among homeowners, finance remained a notable barrier to customers installing retrofit measures, and OSSs could not tackle this without broader political support (see also Bertoldi *et al.*, 2021).

> *"I think there's these perceived challenges that are out there - actually we're not even at that level yet because no one can afford it. There's no funding in place, [when there is] then maybe we can speak about the individual challenges of that person not understanding the retrofit process".* [ID12UK]

3.3. Financial sustainability

Many services that were interviewed were not yet financially sustainable. Those who did consider themselves financially sustainable have been operating for **5 years or more**. The relatively long start-up period was largely attributed to challenges in generating demand. Many retrofit service providers allocate time to educating homeowners about retrofit options, allowing them to subsequently plan, save for, or explore available financing options before proceeding with work. Often, it is several years after initial advice was given that any retrofit work begins. It can take up to 4 years in paperwork, preparing grants and documentation for renovating just one building. After 5 years of navigating the process, some homeowners have abandoned their projects out of fatigue. Additionally, the long project delivery timescales, often due to difficulty finding and commissioning skilled retrofit building professionals, further extended delivery times. This mirrors lessons learnt in developing community-led housing advice services (see Arbell et al., 2022; Hughes, 2024).

Given these challenges, financial sustainability depends on developing **a business model that accommodates fluctuations in funding and income streams**. The providers we interviewed highlighted a value in diversifying revenue sources, such as generating income from advice and surveys in the early years before project delivery begins. Also, structuring the business to balance short-term and long-term income streams may help navigate the peaks and troughs of financing retrofit delivery. Example income streams are captured below.

Income streams:

Percentage of overall project: Some services charged a percentage of the total project fee for managing the project or delivering coordination/assessment services. For example, one service charged 5% to the customer and 5% to the contractor.

Price per item: Most services charged customers per item for surveys, assessments, and, in some cases, installation of measures.

Management of funded pilots or projects: Some services were paid a management fee to facilitate grant funded projects and pilots. This was primarily found in services operating in the grant funded market. However, some services in the able-to-pay market delivered grant funded projects such as offering free surveys.

Commission for quality leads: Some services were paid commissions by installers for generating customer leads. This had mixed success.

Grant funding: Most services rely on some level of core grant funding: for UK services this largely came from DESNZ and its predecessors.

Technical compliance: There is a growing market for delivering technical compliance for grant-funded work. This work is usually commissioned by local authorities to ensure quality retrofit standards.

It is important to note that the literature review (our first report) found that high *transaction costs* are a key challenge for developing financially sustainable OSSs - transaction costs are those created by market inefficiencies within the exchange of goods and services (Coase, 1995), and might also include hidden costs like additional administrative and project management expenses. As each retrofit project is unique, OSSs must organise various components, such as searching, contracting, monitoring and enforcement, which bring their own transaction costs. This can prohibit the development and expansion of retrofit OSSs (Pardalis, 2021).

However, transaction costs did not emerge as a prominent barrier to developing retrofit services in our interviews. We have therefore identified this as an area which requires further investigation (see Section 8).

3.4. Whole house retrofit vs. step-by-step approach

Services recognise the value in a whole-house, deep retrofit approach, as recommended in PAS 2035. Taking a step-by-step approach was considered *'quite dangerous*' [ID10EU] because it can increase overall costs and not account for how the building functions as a system. For example, insulation might be removed in future renovations, leading to inefficiencies and wasted investments. Most OSSs therefore offered whole house modelling and retrofit design.

> *"If you don't take into consideration the whole house at the start, you don't do it the right way"* [ID11EU].

However, while there is a preference for whole house retrofit as an approach among retrofit providers, the whole house approach involves large upfront costs and there is a risk in it becoming *'a middle-class sport'* [ID10EU]. In practice, respondents found that **customers using their OSS services have largely been opting for smaller measures** and taking a step-by-step approach. This is typically owing to the financing options homeowners have available to them. One service argued that the step-by-step approach can be preferrable because it allows for careful evaluation of each installation, preventing the customer from spending too much money. However, the step-by-step approach has implications for financial models of OSSs, particularly those that charge an overall percentage of total project costs. Small-scale, lower cost projects delivered in isolation generate less income, and a step-by-step approach extends timescales, therefore creating more opportunities to 'lose' customers along the way.

While whole house retrofit offers clear advantages in terms of efficiency, cost-effectiveness, and long-term building performance, our findings highlight a tension between this ideal and its practical application. The current policy climate (e.g. finance, regulation) appears to incentivise a more incremental, step-by-step approach. It is important to note that most services interviewed did not target the PRS specifically (discussed further in Section 7), and to consider that landlords might have different motivations to owner-occupiers, such as meeting minimum energy efficiency standards (MEES). This might further disincentivise whole-house approaches in the PRS, or have implications for when whole-house retrofit works can be delivered, such as during void periods between tenancies.

4 Governance and Risk

SUMMARY

Organisational and governance structures shape how services are delivered, for example their relationship to installers. It is important to design governance systems to meet the aims and objectives of the overall OSS service.

Service aims are central to decision-making processes and impact the kinds of expertise and networks required for a successful service. For example, environmental and fuel poverty motivations are common, but require different support and forms of expertise.

Robust data governance is important for monitoring and evaluation, and for delivering retrofit projects with long timescales.

This section examines the different legal and governance structures adopted by retrofit services in the UK and EU. The term governance is understood as a framework for organisations to direct business behaviour and structure clear decision-making processes. It outlines how they shape the service offered, the relationship to the overarching service aims and objectives, and considerations for data governance. The governance structure and legal status of the service has significant implications for how installers are appointed to deliver retrofit work, and how liability and risk are managed. Implications for the PRS, and the Let Zero OSS specifically, are highlighted in Sections 7 and 8.

4.1. Governance and legal structures

Services adopt a range of different governance and organisational structures (see Appendices 2 and 3). These can be broadly categorised as:

- **Not-for-profit** organisations including **co-operatives** with constitutions and a membership with voting rights; **community benefit societies** which have voting members, but benefits are shared with the community rather than only members, and **community interest companies** which have a statutory asset lock but can pay dividends to shareholders and do not require a board that is accountable to the community.
- **Charities** governed by a board of trustees and the Charity Commission, with charitable objectives to guide decision-making.
- **Private enterprises** with at least one director. A legal structure such as a **company limited by guarantee**, enables profits to be shared with members without requiring a full co-operative structure.
- **Local and combined authority and municipal projects** that are governed as part of the authority and follow its procurement rules.

The governance arrangements fundamentally shape how each service is delivered, who the key beneficiaries are, how decisions are made, and how risk is managed. A key aspect of this is the relationship that it can have with installers, discussed next. The ways in which governance arrangements affect other aspects of the service, such as the ability to attain grant funding, warrant further exploration (see Section 8).

Table 1: Overview of respondent's delivery models and service structures

Model	OSS	Combined and local authority or municipal project	Co-operative, community benefit society or community interest company	Charity	Private enterprise
Facilitation	ID06UK		■		
Coordination	ID14EU				■
	ID12UK			■	
	ID15UK			■	
	ID03UK			■	
	ID01UK		■		
	ID04UK			■	
	ID05UK		■		
	ID08UK				■
	ID07UK		■		
	ID02EU	■			
	ID10EU				■
	ID11EU				■
Development/All inclusive	ID09UK				■
	ID13UK	■			

4.2. Supplier appointment and liability

The OSSs relationship with the supply chain is influenced by the governance structure of the service. **Most services do not recommend or directly appoint installers**, because it increases their liability to the extent that the service would be financially unsustainable.

> *"The advice that we got from all our lawyers - and it was a really painful experience - was that actually to recommend someone directly is not something that you have the resources to be able to do because you'll end up potentially by proxy underwriting risk to projects."* [ID05UK]

Organisations with co-operative status offered installer memberships. This not only provides an additional income stream but means that they can have a framework for accepting suppliers as members, and therefore indirectly make recommendations. For example, some require inspection of existing work by the OSS service to be eligible for membership, others mandate training. Through the terms of membership, quality can be ensured, and a mechanism for removing suppliers is created.

Local authority or municipality run services could appoint suppliers but, in doing so, must follow specified procurement rules. This impacts on the suppliers that they can appoint to deliver retrofit works. In some cases, this means using a national provider as well as local SMEs because they are not permitted to specify that businesses must be local in their tendering process, despite an organisational preference for local SMEs.

In other examples, services had been purposefully set up as commercial bodies outside of local and combined authorities as a strategy to avoid procurement processes.

Careful consideration for the governance structure is needed at business start-up phase, considering issues such as those identified above owing to their direct impact on future business operational practices.

4.3. Organisational aims and objectives

OSS services tend to be mission-led, regardless of their legal status. Services underscored the role of their aims and objectives in underpinning their organisational decision-making processes.

> "*[We have] core tenets that we believe very strongly in, and everything we do is geared around moving us towards net zero, fighting the challenges we see in fuel poverty and helping local organisations and other businesses to flourish…we also offer a lot of upskilling, [another] one of our core tenets".* [ID01UK]

Creating social value is a key aim for most services - for instance, addressing fuel poverty and improving housing quality. This has implications for the way a service subsequently operates and its overarching governance model (see Section 7 for specific considerations for the PRS).

Having core organisational objectives also shapes which expertise and networks are required, for example, most services targeting the able-to-pay market have objectives that relate to improving energy efficiency to reduce the environmental impacts of domestic properties. This is made possible and supported by the respective expertise of the networks which they could draw on, such as, architecture, and backgrounds in climate activism.

Organisational flexibility is essential. OSSs said it was important to have a staff base that can grow and shrink depending on grant funding availability, seasonal variation (e.g. there was less demand during the summer months), and cash flow issues generated by the long retrofit timescales. As such, the size of team varied between services, but the majority had **5-15 members of staff**. Sometimes an additional phone-advice team. However, this variability has additional implications for considering services' duty of care to workers.

In contrast, several of the charity and local authority-led projects (particularly those delivering grant funded work) focus on reducing fuel poverty and improving health outcomes as their core service objectives. Reflecting this, their project boards include expertise in fuel poverty, hard to reach groups and social care. These services also often hold long-standing relationships in the local area, both with local authorities and with trusted installers with a track record of working with vulnerable people, before developing their retrofit projects.

4.4. Data governance

Good data governance is important to the success of retrofit services. The long timescales between initial customer contact and project completion mean that services need to be able to track each customer interaction (see Section 7). This could support for example future leads and the tracking and forecasting of prospective intervention points. There is value therefore in **having robust customer management systems** in place.

Additionally, careful recording of customer interactions and interventions is often a reporting requirement to meet funder terms and conditions. Respondents are required to demonstrate delivery and project evaluation criteria including, for instance, energy efficiencies and cost savings achieved.

Introducing good data collection practices also presents an opportunity to demonstrate other forms of social value and savings (e.g. NHS savings generated by healthy homes). Data such as this could be valuable for underpinning future grant funding applications, as almost all services interviewed received some form of external funding, either in their start-up phase or as part of their ongoing service delivery, such as delivering additional funded pilot projects or facilitating local authority funded energy surveys.

At business start-up phase, it is therefore prudent to ensure solid data governance practices are embedded within the structure of a service and accompanying policies in place to ensure employees work to specified data governance standards for the organisation.

5 Retrofit installers and engaging the supply chain

SUMMARY

Building a local supply chain for retrofit is often an important aim for service providers.

There is a strong preference for using local installers, both for building customer trust and maximising the added value to the supply chain.

Retrofit service governance arrangements play a vital role in how the services work with installers.

Many retrofit services had aims around developing the local supply chain. This section outlines the key supply chain barriers identified by services, and strategies for building and engaging with the supply chain. Section 7 and 8 identify where there are learnings for the PRS and the Let Zero OSS in relation to the supply chain.

5.1. Supply chain barriers

Supply chain challenges are a key bottleneck in scaling the retrofit sector (PwC, 2022; Brocklehurst et al., 2022; Balagopalan and Jones, 2023). This is not always because of an overall lack of labour but also because of geographic and measure-specific shortages. For example, one service noted that there are lots of solar PV installers in their area but finding firms that could install secondary glazing in heritage areas, a key need in their locality, was difficult. Most retrofit services therefore preferred to use locally based installers, regardless of the geographic scope of the OSS. Customers also indicated **higher levels of trust in local installers**, feeling that local installers better understand the local area, communities and house archetypes. There was also a greater sense of accountability associated with being able to contact a local company rather than a national firm. The services themselves associated local installers as providing higher quality work and lower costs, because local installers could visit properties multiple times to conduct surveys and pre-work, whereas those travelling longer distances would aim to minimize travelling or increase costs to cover travel.

There are, however, specific challenges around finding accredited installers. While this mainly presents issues for grant-funded work, most UK services followed *'the spirit of PAS'* [ID07UK] nonetheless, preferring to work with accredited suppliers. Few installers can meet this specification, however. The **lack of accreditation was attributed to the prohibitive cost of training, as well as high staff turnover.** This made it difficult to maintain the levels of staff with NVQs required by Trustmark. A respondent noted for example, that to access funding for training from Scottish Enterprise, companies need to have twelve or more employees, thereby excluding many of the SMEs who want to enter the retrofit market. As noted in Section 4.2, larger

suppliers that can become accredited are therefore more likely to receive public contracts.

Several services were sceptical about the value of accreditation schemes like Trustmark - the government endorsed quality scheme for home improvements, and MCS (Microgeneration Certification Scheme), which certifies renewable energy products and installers. For example, some services argued that if only one employee needs to have installed one heat pump for the whole organisation to receive accreditation, then accreditation does not meaningfully improve quality.

5.2. Developing and engaging the supply chain

A small number of services saw building the local retrofit supply chain as part of their core purpose. They enact this by:

- **Offering training and support to local businesses** through lectures and workshops that highlight the business opportunities available as well as the technical aspects of retrofit.
- **Connecting them to customers** by building directories of local businesses that offer retrofit installations.
- **Managing poor quality installers** by giving them additional training and support to correct work, rather than removing them from directories.
- **Focusing on microbusinesses** that can benefit the most from the OSS, such as through training and access to customers.

In most cases, establishing and maintaining strong working relationships with retrofit suppliers is seen as essential to the success of the OSS. Ensuring ongoing support, quality assurance, and collaboration with local businesses and respective stakeholders (e.g. local authorities), is key to scaling and sustaining these efforts, and ensuring that the OSS business model is inclusionary for local SME suppliers to access. CRESR researchers are currently investigating inclusive business practices for the retrofit supply chain, and the implications for 'good work agendas' (see Macrorie *et al.*, 2024); the findings of this research may be of interest to the Let Zero project.

Example installer engagement strategies:

On-site training: Bringing a mobile training rig to building sites to train workers, meaning that training can be completed in a few hours rather than losing an entire day.

First install schemes: Funding a first install of a heat pump to allow installers to apply for Trustmark. This is usually in the installers own house so that they can understand how it works and where points of failure might arise.

6

Customer service and engagement

SUMMARY

Initial contact with customers should be about establishing their goals and capacity to retrofit and how this aligns with the goals of the service.

Some customers require a high level of support throughout the process, and having a designated point of contact is important.

It is important to have a robust customer management system that can follow the customer journey over several years.

This section explores how retrofit service providers have engaged with potential customers. This includes the importance of the advice stage of the customer journey. It highlights examples of engagement strategies employed by service providers, and how governance arrangements can influence customer engagement.

6.1. Initial advice

All services place high value on providing retrofit and energy efficiency advice, and all offer free information in their first interactions with customers. Advice is seen as fundamental to bringing people onto the customer journey by explaining the technical aspects of retrofit and of how their own houses perform. This reduces the informational barriers experienced in making retrofit decisions (Mininni *et al.*, 2024). Most services said there was a large appetite for advice. Customers primarily want to know what measures to install and what companies are trustworthy.

> *"I thought why are people such idiots, why wouldn't they want to renovate their building? And then we did this study, and I was going Oh my God, they're smart, of course they would because 90% of the time they know nothing about what's going on."* [ID14EU]

All services agree that impartiality is essential (see Section 3.2). Advice must be offered carefully because of implications associated with both the organisational form (see Section 4.2) and mitigating against customer misunderstandings. For example, potential cost savings and payback times have to be clearly explained, and services have to be careful not to mislead customers. Retrofit services can therefore be understood as supporting the relational dimensions of retrofit by building trust between households and retrofit suppliers (Bolton et al., 2023).

6.2. Advice to installation: conversion rates

Services often experience low conversion rates from advice to installation. For some, this is because customers are signposted to other services (e.g. fuel poverty support) or decide not to proceed. There are also long time periods between receiving advice and proceeding with work. This might be to save up money to finance works, or to align with key moments such as other renovation works. It is therefore important to **recognise the longevity of projects** and to build this into the business model (see Section 3.3 on financial sustainability).

Mission-led services also focus on providing the right service to customers. The advice stage of customer engagement is also used to understand customers goals and capacity to do retrofit work. In some cases, **customers are signposted to different services because retrofit is not the right option for them**. Some reasons for this include:

- Their houses are either already too high performing, or require too much work to reach their energy efficiency goals, and it would be more cost effective to move house.
- The homeowner has personal circumstances, such as a lack of mobility or ability to cope with disruption, which makes retrofit unsuitable for them.
- Existing EPC data appears inaccurate, and getting a new EPC certificate might help them reach their goals without immediate retrofit measures.

A key takeaway is the importance of being upfront with homeowners and setting realistic expectations about timescales for whole house approaches, particularly if financing relies on grant funding. This will support managing expectations, both with customers and other stakeholders across the supply chain.

Because customer engagement can vary so much and lead to different endpoints, services emphasised the importance of tracking every customer interaction (e.g. attending a workshop, a call for advice, or undertaking a survey). Periodic follow-up calls can then track progress and reinforce key messages. To support this, a robust customer management system is required.

6.3. Governance models and customer engagement

Customer needs and challenges are similar across retrofit services, such as the demand for advice and long timescales for completion of work. Therefore, the services have developed similar approaches to customer service regardless of their legal status, governance arrangements and business models. Services described their role as 'hand holding' customers through the retrofit journey, with some taking a case-work approach, with a named point of contact for each customer that would offer a high level of support, often over several years.

The services offered to customers are therefore **not necessarily constrained by the legal status, governance arrangements or business models, but can be shaped by them.** For instance, whether potential customers are turned away if the service does not meet their goals depending on whether the service was mission-led or profit driven (see Section 6.2). Those services working primarily in fuel poverty reduction or with vulnerable households offer a broader range of complementary services, such as loft clearance and energy bill debt support.

Given that landlords are likely to have different motivations and needs than the able-to-pay homeowners targeted by most services, there are specific considerations for the customer service offered, and strategies for driving engagement (see Section 7).

Example customer engagement and marketing strategies:

Social media and online campaigns: Using digital engagement approaches works well for driving engagement through digital retrofit platforms.

Community workshops on topics related to retrofit and reducing energy bills, such as heat pumps, solar panels, insulation, and behaviour change were good ways of driving interest and making initial connections between potential customers and installers.

Offering **free thermal imaging surveys**. Using these basic surveys gives customers an insight into how their home is performing and encourages them to get full energy surveys completed. They can then be signposted to retrofit services.

Public technology demonstrators: Some services had physical opportunities for the public to see retrofit measures in practice. This includes a demonstration centre in a library, a mobile van, and a physical shop.

Attending existing community events as guest speakers, building on already existing groups such as community energy groups.

Many services work closely with **fuel poverty services**, often referring customers to each other.

7 Considerations for the PRS

Landlords are often perceived as difficult to engage with on issues of retrofit. To some extent, this is supported by existing evidence, with accounts of low uptake of retrofit in the PRS. This is often attributed to:

1. **The 'split incentive' problem,** where landlords bear the costs of property upgrades while tenants benefit financially from the reduced energy bills, thereby resulting in limited incentives to retrofit their properties (Melvin, 2018).
2. **The 'principal agent' problem,** in which tenants are assumed to be un-informed about energy efficiency and exactly how much an energy inefficient property affects their household bills. They are therefore unlikely to recognise the value in paying a premium for energy efficient properties, which would demand better energy performing properties from landlords across the PRS (Ambrose and McCarthy, 2019).

However, beyond these economic barriers, there are also a range of factors that shape landlords' retrofitting behaviours. These include informational barriers and mistrust between landlords and local authorities and retrofit installers (Mininni et al., 2024). Research has also highlighted potential for intermediary organisations to shape landlord retrofitting decision-making (Horne *et al.,* 2015).

While our interviews include stakeholders working across the retrofit sector, rather than solely focusing on the PRS (partly owing to the limited number of PRS-specific service providers), the insights gained from our findings are relevant to addressing PRS-specific challenges. For example, successful engagement strategies from the owner-occupied, able-to-pay sector, such as using trusted intermediary retrofit services, developing trusted contractor networks, or offering clear financial routes to retrofit (including grant mapping or advising on cost breakdowns), could be adapted to encourage landlord participation in retrofit schemes. Our findings also highlight a need to tailor the service to the PRS sector. **Our interviews reveal several key considerations that are specific to the development of a PRS-focused OSS:**

7.1. Defining 'landlords'

It is important to consider how 'landlords' are defined. For example, one person may own properties in their name, under various corporate entities, and share a property with a spouse. In the Let Zero service, could this person draw down grants under three different entities? A clear definition of 'landlords' will enable rigorous eligibility criteria to be developed.

7.2. Landlords with properties spanning multiple local and combined authorities may face inconsistent procedural requirements

Does having a regional retrofit service simplify the landlord customer journey, or mean that they are following different processes depending on the geographic spread of their property portfolios? Landlord journey mapping therefore, to specifically test the practicalities of engaging with multiple different authorities or municipalities, may illuminate important pinch points for multiple property owners that are otherwise reinforcing the barriers to engagement.

7.3. Management Information System (MIS) for Landlord Engagement

To track landlord engagement, barriers and progress of their retrofit journey, capturing information like landlord property ownership across boundaries, might position the OSS to be able to scale up its service. Periodic follow-up calls can help track progress, reinforce key messages, and remind landlords of the OSS support offering. It is therefore important to implement a robust customer management system.

7.4. Lack of landlord engagement

Services attempting to engage with landlords encountered ‘absent landlords’ and a lack of enforcement of existing standards in the PRS. This presents additional challenges for generating demand for retrofit in the PRS. Developing a successful landlord engagement strategy, supported by a MIS to track retrofit journeys, may create opportunities to scale the OSS by offering consultancy to other retrofit service providers, and a valuable dataset.

7.5. Landlord choice

Landlords might already have trusted suppliers. This has implications for the relationship that the OSS holds with suppliers and how it will be managed (see Appendix 2 for overview of the commonly recognised business models). For example, some OSSs have installers as members, or preferred lists of suppliers that have service level agreements with the OSS, which reduces reputational risk (see Appendix 3). In contrast, those that do work with landlords emphasise the importance of ‘landlord choice’ and argue that a OSS that directly appoints installers might be unattractive to landlords. This impacts the possibility of having a framework or pathway for installers that work directly with the OSS.

7.6. Housing quality in the PRS

There are endemic housing quality challenges in the PRS, including more dangerously cold homes than any other tenure (Ambrose, 2015). This may have implications for how the service positions itself, its strategic priorities (for example, achieving net zero vs. improving health and housing quality) and the job roles it employs, and where those roles are situated/focused within the structure of the organisation.

7.7. Landlord motivations

Landlords vary in their motivations depending on their circumstances and property portfolios. For example, accidental landlords or those owning one property as an investment or retirement fund may be motivated by personal values, such as providing good quality housing or low carbon footprint. In contrast, landlords owning large portfolios might be focused on the financial implications of their investment decisions,

weighing up potential gains and losses (see Mininni *et al*. 2024 for discussion of landlord inhibiting factors and potential incentives). Landlords also differ in their relationships with tenants - while some maintain a distance, others rent their properties to friends and family or long-term tenants. These factors can affect landlord motivations to invest in property improvements for the tenant's benefit.

7.8. Whole house retrofit vs. step-by-step approach

Motivations for retrofit among landlords are likely to be different from private homeowners targeted by most services interviewed. For example, they may be considering the most effective route to reaching minimum energy efficiency standards (MEES), or how to address specific issues (such as damp and mould) in their properties. In this case, the 'whole house' or 'deep retrofit' approach may be less attractive. Instead, it may be preferable to frame the service around achieving particular goals.

7.9. Timelines and preparation for retrofit work

While several respondents note the importance of temporal intervention points (i.e. the first six months after buying a house), landlords have different intervention points. For example, property void periods are key moments for renovating properties, but timescales are minimised to avoid income loss. Getting retrofit work delivered requires void periods to line up with grant availability and raises logistical challenges such as the storage of furniture in furnished properties.

7.10. Total cost of occupancy

While there are fears that retrofit may lead to rent increases (Femenías *et al.*, 2018), there is a possibility that there may still be a reduction in the overall cost of occupancy if the project results in large energy efficiency gains. There is an opportunity to work with estate agents to advertise total cost of occupancy. This may also have implications for evaluation purposes: it might be useful to measure changes in total occupancy costs.

8 Considerations for setting up the Let Zero OSS in South Yorkshire

Our research examines existing retrofit OSSs and services and their business and governance models, relationship with the supply chain, and approach to customer service and engagement. There are broad similarities across OSSs interviewed, and these tried and tested approaches can be drawn upon in developing the Let Zero OSS. For example, a key way that existing OSSs overcome trust and informational barriers to retrofit is through focusing on delivering impartial advice and retrofit coordination (see Sections 3 and 6). Most services target the able-to-pay, homeowner market. Retrofitting the PRS presents additional challenges (see Section 7). However, drawing from our findings we summarise three ways the Let Zero OSS can add value to landlords to overcome barriers to PRS retrofit:

1. **Offering impartial advice** that is independent from retrofit installation. The advice stage of the customer journey has several functions: it helps to overcome informational barriers, it builds trust in the technical aspects of retrofit and between landlords, the supply chain, and the local authorities, and it generates demand. For the PRS specifically, offering initially free, impartial advice can engage landlords (and tenants) and help to identify the landlord's motivations and avoid 'prescriptive' solutions that have underpinned previous policy failures in the PRS (Mininni et al., 2024).
2. **Presenting information in a way that supports decision-making**, such as offering simple, visually appealing reports (supported by house walk-throughs) instead of complex reports. These could demonstrate the benefits of a whole-house approach while transparently outlining implications and options for phased retrofits. Linking this to potential improvements in EPC ratings and property and rental values is an effective way to make sure information is relevant to landlords, such as in meeting MEES. This is particularly important given that for many landlords, property rentals are not their primary source of income (Kerr and Winksel, 2018), and complex reports may increase administrative burden, rather than reduce it.
3. **Offering quality assurance**, including checking work is technically complaint, in line with government standards for the PRS, and advising customers when to release funds. This can instil trust between tradespeople and landlords and, importantly, with local authorities by providing assurance that the work delivered is in line with a changing policy and regulatory landscape. Additional income streams could be generated through EPC assessments that support landlords in complying with MEES (see Section 3.3).

Initial findings from our research shows that the governance and business models of OSSs have important implications for their service offering to customers and their engagement with the supply chain (see Sections 4, 5 and 6). To deliver an effective service to landlords through the Let Zero OSS, we have identified three questions to consider:

1. **What are the primary aims and objectives of the service?** The aims and objectives of the service are important for determining the expertise required on governance boards, the networks built with related services in the region, and the job roles required within the OSS service. Respondents that work with the PRS highlight the urgent social issues that can be encountered (see Section 7), and therefore the need for specific expertise in fuel poverty, housing, and social care. This contrasts with those working in the able-to-pay, homeowner market, who are more likely to draw on technical (such as that of architects) and environmental expertise. Clearly defined aims and objectives, therefore, are central to establishing the appropriate financial and governance arrangements for delivering value to the PRS.
2. **What is the pathway to financial sustainability?** We found OSSs and similar retrofit services in the able-to-pay, homeowner sector took 5+ years to become financially sustainable (see Section 3). Working with the PRS raises additional challenges for financial sustainability (see Section 7). For example, landlords might prefer to use their own trusted contractors which limits opportunities to generate income through mediating the relationship between customers and suppliers. In addition, landlords' portfolios often span multiple local authorities. This could mean that regional OSSs may complicate, rather than simplify, the customer journey by generating multiple administrative processes. For financial viability, the OSS therefore must add significant value to the landlord customer journey.
3. **How can business models, governance arrangements and legal status best support the retrofit service's goals and delivery?** A key finding of our research is that the business model, governance arrangements and legal status of retrofit services must align with the organisational aims and objectives and enable a delivery model that can achieve them. It is therefore important to determine what model will best support the landlords being targeted: will you partner with accredited, local installers only, maintain a vetted list, or employ in-house contractors? What level of oversight will the OSS service have on installations, and how will this impact liabilities? The approach chosen has implications for which stakeholders take on the risk of retrofit projects (see Sections 4 and 5), and the decisions made now regarding business model and governance design will have a direct impact on the OSS service delivery.

This report outlines the initial findings of CRESR's research into retrofit OSSs. As well as offering insights into the existing landscape, including approaches to governance, supply chain engagement and customer service, this preliminary analysis identifies areas that require more detailed exploration. Specifically, this includes the ways in which governance arrangements affect other aspects of retrofit services, such as the ability to attract grant funding, and the impact of transaction costs on financial viability. Our next steps include a second analysis of the data and additional data collection through interviews with landlords and tenants, regional stakeholders and additional retrofit services to embed real-world knowledge and the lived experience of those in receipt of the service in the design and delivery of the OSS.

Appendix 1: Methodology

Research Activity: Mapping and interviews with exemplar OSS initiatives

To gather more in-depth understanding about the operations of OSSs 'in practice' and to gather learning about successful implementation, we conducted a mapping exercise to identify OSSs operating across the UK and EU to gather initial information on the types and scales of operations already being undertaken. We then contacted a sample of these OSSs for interviews to better understand their operations, aiming for interviews with c.15 OSS in the UK and EU.

Mapping exercise

The first stage of the research involved desk-based research of UK and European retrofit service providers. Based on websites and available documents, we reviewed 51 providers. We recorded information including:

- The period that the provider has been active.
- The location and geographical spread.
- The level of service offered (from retrofit advice through to full installation and evaluation).
- Basic governance arrangements including indicative business model.
- Funding sources and income streams.
- Aims, objectives or mission statements, including target customers.

We used this desk-based research to gain a clearer understanding of the variety of retrofit services currently operating in the UK and Europe. This informed the selection criteria for inviting retrofit services to interview, allowing us to explore in further depth their operational models and governance arrangements (topic areas listed below).

Selection criteria

We created criteria for selecting the retrofit service providers to interview to ensure that they aligned with the goals of the overall research project - establishing a retrofit OSS service for the private rented sector in South Yorkshire. Owing to the infancy of 'retrofit' and 'retrofit OSSs, we purposefully adopted a flexible approach to recruitment of organisations providing retrofit OSS services, across the UK devolved nations and key EU cities, to capture a broad range of relevant data.

Therefore, based on the research project goals, the diversity of OSSs and the need to comprehensively understand the retrofit landscape, primary inclusion criteria include:

- OSS retrofit services that provide both elements of retrofit service that are beyond solely installing retrofit measures (e.g., energy audits, financing, project management)
- Geographical location – UK devolved nations and key EU cities (to tease out solutions influenced by place-based regional factors)

- Scale and experience of OSS purposefully variable to tease out both barriers to entry and long-term strategic operations
- Financing models purposefully variable to explore different approaches adopted and their effectiveness, particularly as financing is a key barrier for retrofitting.

In-depth interview topic areas

Based on these criteria, we invited 41 services to a 1-hour, semi-structured, online interview.15 responded and were interviewed. The interviews coved four broad topic areas:

1. About the service (history, funding models, delivery record).
2. Governance and risk.
3. Customer service and customer engagement.
4. Retrofit supply chain.

Interviews were recorded, transcribed, and thematically analysed.

Appendix 2: OSS business models

A2

The Innovate project ran between 2017 and 2020 and included 13 organisations from 11 European areas. They worked together to develop and roll out integrated energy retrofit packages for homeowners in one location (Cicmanova et al., 2020). The below depicts the four types of business models the Innovate partners identified:

Business model	Roles & responsibilities	Practical example of what the one-stop-shop offers to homeowners
1 Facilitation model	• Raise awareness on energy renovation benefits • Provide general information on optimal renovation works • First advice at the 'orientation stage'	It advises on how to renovate your house and can provide you with the list of suppliers.
2 Coordination model	• Coordinate existing market actors (suppliers) • Make sure all one-stop-shop services are offered to homeowners • No responsibility for the result of renovation works (only overlooking the whole process) • No responsibility for the overall customer journey (just the first part)	It advises on how to renovate your house and will push suppliers to comply with their promises. Suppliers remain responsible for the final result.
3 All-inclusive model	• Offer a full renovation package to homeowners • Bear responsibility for the result of renovation works • Bear responsibility for the overall customer journey	The one-stop-shop is a contractor that sells you the whole service package and is your main contact point in case something goes wrong with suppliers.
4 ESCO-type model	• Offer a full renovation package with guaranteed energy savings to homeowners • Bear responsibility for the result of renovation works • Bear responsibility for the overall customer journey	The one-stop-shop sells you the renovation package and guarantees the energy savings for the contract duration. The one-stop-shop is paid through energy savings achieved.

Appendix 3: Summary of OSS approaches

A3

Organisational forms and legal structures

Member-led organisations: (*Co-operatives; Community interest companies; Community benefit companies).* These have governing documents that specify the aims and objectives of the organisation that shape decision making. Any profit must be reinvested for the benefit of members or the community.

Charities: (*Charitable trusts; Charitable incorporated organisation; Company Limited by Guarantee).* These have charity status, meaning they have exclusively charitable purposes and not create individual benefit. Charities have to report to the charity commission. They have a board of trustees.

Local/combined authority projects: Projects run as part of local and combined authorities or municipalities. These can be partnerships with a lead authority to adminster funding and take on risk and accounting. Usually this is for grant-funded retrofit, with able to pay work outsourced to organisations with commercial arms.

Private Enterprises: These are governed by directors and shareholders.

Income generation streams

Percentage of overall project: Some services charged a percentage of the total project fee for managing the project or delivering coordination/assessment services. For example, one service charged 5% to the customer and 5% to the contractor.

Price per item: Many services charged customers per item for surveys, assessments, and, in some cases, installation of measures.

Management of funded pilots or projects: Some services were paid a management fee to facilitate grant funded projects and pilots. This was primarily found in services operating in the grant funded market. However, some services in the able-to-pay market delivered grant funded projects such as offering free surveys.

Commission for quality leads: Some services were paid commissions by installers for generating customer leads. This had mixed success.

Grant funding: Many services relied on some level of core grant funding, largely from DESNZ and its predecessors.

Technical compliance: There appears to be a growing market in delivering techical compliance for grant funded work. This was usually paid by Local authorities to ensure quality.

Range of services offered

Initial advice about retrofit, energy efficiency or energy bills: Usually free telephone advice, with customers not being charged until someone comes to visit the property. In some cases, this was used to establish the needs of the customer, and those that would not benefit (their house was too high performing, it would cost too much, or they couldn't cope with disruption) were signposted elsewhere.

Education: Workshops for the community that raise awareness of retrofit and introduce different measures and how they work.

Home energy surveys, installation surveys and retrofit design: Most services offer some form of basic home energy service or home energy efficiency plan. Many services license Carbon Co-op's Home Retrofit Planner to do this. Many offer surveys for specific measures such as heat pumps. Some offer full retrofit design.

Accessible reports: Several services re-wrote reports or did home walk throughs with customers because they felt that the full report (e.g. by Carbon Co-op or Elmhurst) was too technical and long, and that it did not aid decision-making. Shorter reports which summarised what they spoke about were preferred.

Installation support: Helping customers to release funds at the right time, ensuring that work was completed as it should have been. This usually involves site visits and can be at key milestones.

Design reviews: Some services helped customers to reduce risk by offering design reviews, where an expert would review retrofit drawings and designs (or for opportunities for implementing retrofit alongside other projects like extensions).

Grant facilitation: Many services support customers in finding out if they are eligible for grants and applying for them.

EPC certificates: Some services had in-house EPC assessors who could issue new EPCs at the end of the project. In some cases, services recommended a new EPC the existing EPC seemed inaccurate. For landlords in particular, a new EPC may raise the property to an EPC without needing retrofit.

Installation: A limited number of retrofit services spoken to deliver the installation of measures chosen. This was either in the grant-funded market or where the service was a private enterprise with in-house construction.

Handover to customer: In line with PAS 2035 process, retrofit projects need to be handed over to customers. The responsibility for this is generally the principal contractor, but in some cases (such as lots of different installers being used) retrofit services supported the handover process and took the opportunity to reinforce messages about how to use the house or keep energy bills low.

Support for preparing for retrofit installation: A service that specialised in working with vulnerable customers offered services such as loft clearances and basic maintenance needed before retrofit could take place (such as removing ivy from external walls). This was primarily for grant-funded work where residents were vulnerable or lacked mobility.

Fuel poverty reduction services: In the grant-funded market, many retrofit services worked hand-in-hand with fuel poverty services. Retrofit then may be accompanied by energy bill debt reduction strategies.

Technical compliance: There appears to be a growing market in delivering technical compliance for grant funded work. This was usually paid by Local authorities to ensure quality.

Dispute resolution: Few services offered formal dispute resolution, but many supported customers through disputes with installers. This included instructing them when not to release funds, finding new installers and handing over projects, and general 'pastoral' support that extended beyond project end dates.

Supply chain/relationship with installers

No relationship: In this case, the service has no relationship with installers and will not recommend them. This is to prevent liability and thus keep costs lower. In some cases, it is because procurement rules prevent it.

Holding a directory of installers: In this case, the service might provide a directory of known installers for customers to choose from. In some cases, installers must meet some form of accreditation or standard or follow the service's framework to be listed.

Installers as members: In this case, installers are members of the organisation (in member-led organisation). They generally pay a membership fee which gives them access to client base as well as other benefits like training. To become members, they must adhere to the organisational standards and values. In some cases, there is a formal agreement or contract made with the installer that can be used to manage disputes.

Appointing or referring an installer: In this case, installers are appointed by the retrofit service. This can be based on various factors, but several interviewees noted the importance of personality match. This required longstanding relationships with installers. In some examples, this raised issues of reputational risk if a referral was made but the installer fails to respond in a timely manner.

Installers pay commission: In this case, installers are contacted by the customer, but the installer pays a finder's fee to the retrofit organisation. For some organisations, this has worked and is the primary income stream. For others, this has been unsuccessful.

Sub-contracting work to installers: This was rarely the case for the able-to-pay market because of the increased liability.

References

Ambrose, A.R. (2015) 'Improving energy efficiency in private rented housing: Why don't landlords act?', *Indoor and Built Environment*, 24(7), pp. 913–924. Available at: https://doi.org/10.1177/1420326X15598821

Ambrose, A. and McCarthy, L. (2019) 'Taming the "masculine pioneers"? Changing attitudes towards energy efficiency amongst private landlords and tenants in New Zealand: A case study of Dunedin', *Energy Policy*, 126, pp. 165–176. Available at: https://doi.org/10.1016/j.enpol.2018.11.018

Arbell, Y., Archer, T., Moore, T., Mullins, D., and Rafalowicz-Campbell, M., (2022) Homes in Community Hands: Year Three evaluation report. Power to Change. Available at: Homes in Community Hands: Year Three Evaluation – The Young Foundation

Bagaini, A., Croci, E. and Molteni, T. (2022) 'Boosting energy home renovation through innovative business models: ONE-STOP-SHOP solutions assessment', *Journal of Cleaner Production*, 331, p. 129990. Available at: https://doi.org/10.1016/j.jclepro.2021.129990

Balagopalan, S. and Jones, P. (2023) *Retrofit: The workforce we need*. Hampshire, UK: Autonomy, p. 56. Available at: https://autonomy.work/wp-content/uploads/2023/02/RETROFIT-March-23.pdf (Accessed: 24 February 2025)

Bertoldi, P. *et al.* (2021) 'The role of one-stop shops in energy renovation - a comparative analysis of OSSs cases in Europe', *Energy and Buildings*, 250, p. 111273. Available at: https://doi.org/10.1016/j.enbuild.2021.111273

Bolton, E. *et al.* (2023) 'The relational dimensions of renovation: Implications for retrofit policy', *Energy Research & Social Science*, 96, p. 102916. Available at: https://doi.org/10.1016/j.erss.2022.102916

Brocklehurst, F. *et al.* (2021) 'Domestic retrofit supply chain initiatives and business innovations: an international review', *Buildings and Cities*, 2(1), p. 533. Available at: https://doi.org/10.5334/bc.95

Coase, R. H. (1995). The nature of the firm. In S. Estrin, & A. Marin (Eds.), *Essential readings in economics* (pp. 37-54). London: Macmillan Education UK. doi:10.1007/978-1-349-24002-9_3 Retrieved from https://doi.org/10.1007/978-1-349-24002-9_3

Copiello, S., Donati, E. and Bonifaci, P. (2024) 'Energy efficiency practices: A case study analysis of innovative business models in buildings', *Energy and Buildings*, 313, p. 114223. Available at: https://doi.org/10.1016/j.enbuild.2024.114223

Cicmanova, J., Eisermann, M., & Maraquin, T. (2020). One-stop-shop guide for sustainable home renovation: Setting up innovative local or regional renovation platforms. Energy Cities. https://energy-cities.eu/wp-content/uploads/2020/07/INNOVATE_one-stop-shop_guide_2020.pdf

Department for Levelling Up, Housing and Communities (DLUHC), 2023. *English Housing Survey: Headline Report 2022 to 2023*. [online] London: UK Government. Available at: https://www.gov.uk/government/statistics/chapters-for-english-housing-survey-2022-to-2023-headline-report (Accessed 24 July 2025).

Femenías, P., Mjörnell, K. and Thuvander, L. (2018) 'Rethinking deep renovation: The perspective of rental housing in Sweden', *Journal of Cleaner Production*, 195, pp. 1457–1467. Available at: https://doi.org/10.1016/j.jclepro.2017.12.282

Horne, R., Dalton, T. and Moloney, S. (2015) 'Beyond the split incentive: governing socio-technical relations in private rental housing retrofit', in *Retrofitting Cities*, pp. 135–149.

Hughes, P. (2024) 'Regional intermediary actors and professionalism in community-led housing: implications of the enabler hub network in England', *Housing Studies*, pp. 1–24. Available at: https://doi.org/10.1080/02673037.2024.2439455

Kerr, N. and Winksel, M. (2018) *Private rental sector and home energy retrofit investment*. Scoping Report. Edinburgh: Climate Xchange: Scotland's Centre of Expertise Connecting Climate Change Research and Policy, p. 16. Available at: https://www.climatexchange.org.uk/wp-content/uploads/2023/09/private-rental-sector-and-home-energy-retrofit-investment.pdf (Accessed: 28 March 2025).

Macrorie, R. *et al.* (2024) 'Support Place-Based and Inclusive Supply Chain, Employment and Skills Strategies for Housing-Energy Retrofit', in A. Crowther et al. (eds) *Strengthening European Energy Policy*. Cham: Springer Nature Switzerland, pp. 73–85. Available at: https://doi.org/10.1007/978-3-031-66481-6_6.

Melvin, J. (2018) 'The split incentives energy efficiency problem: Evidence of underinvestment by landlords', *Energy Policy*, 115, pp. 342–352. Available at: https://doi.org/10.1016/j.enpol.2017.11.069

Mininni, G.M. *et al.* (2024) 'Landlords' accounts of retrofit: A relational approach in the private rented sector in England', *Energy Research & Social Science*, 118, p. 103742. Available at: https://doi.org/10.1016/j.erss.2024.103742.

Pardalis, G., Talmar, M., and Keskin, D. (2021). To be or not to be: The organizational conditions for launching one-stop-shops for energy related renovations. *Energy Policy, 159*, 112629. doi:10.1016/j.enpol.2021.112629.

Pardalis, G., Mahapatra, K. and Mainali, B. (2022) 'Comparing public- and private-driven one-stop-shops for energy renovations of residential buildings in Europe', *Journal of Cleaner Production*, 365, p. 132683. Available at: https://doi.org/10.1016/j.jclepro.2022.132683

Putnam, T. and Brown, D. (2021) 'Grassroots retrofit: Community governance and residential energy transitions in the United Kingdom', *Energy Research & Social Science*, 78, p. 102102. Available at: https://doi.org/10.1016/j.erss.2021.102102

PwC (2022) *Green skills as an enabler of UK retrofit*. Deep dive research report. PwC, p. 15. Available at: https://www.pwc.co.uk/who-we-are/purpose/green-jobs-barometer-retrofit.pdf (Accessed: 31 January 2025).