



Project No-One Home

A report on improving monitoring of vacant properties by reviewing existing and emerging methods and technologies to enable better management of vacant properties.



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Authors	Frances Youngson Natalie Martin
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Reviewed by	Matthew Martin David McKenzie
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Executive Summary

Since the deregulation of the Non-Household (NHH) water markets in Scotland (2008) and England (2017), responsibility for market data has been shared between wholesalers and retailers. This project explored a proactive, tech-led approach to identifying and managing Long Term Vacant (LTV) properties.

From a refined dataset of **1,400 sites**, we conducted desktop analysis, site visits, and attempted deployment of monitoring technology to assess occupancy status, identify trends, and uncover barriers to accurate classification. While site visits proved valuable in verifying property status and uncovering data discrepancies, the deployment of Limpet devices was significantly constrained by access issues, meter compatibility, and inconsistent wholesaler support. Only **34 devices** were installed, well below the original target of **100 devices**.

These findings confirm that LTV management remains complex, with ageing data, fragmented ownership, and detection challenges continuing to undermine market accuracy. Key recommendations focus on improving data quality, refining tracing protocols, and enabling more effective use of monitoring technology in future phases.

1. Introduction

This project is funded by the Market Improvement Fund. The Market Improvement Fund was set up to fund innovative projects that will benefit the non-household water market and its customers. The fund is overseen by the Strategic Panel (including project selection, funding allocation and progress of work) and administered by MOSL.

The deregulated NHH water market introduced shared responsibilities for property data accuracy. LTV properties present a persistent challenge, impacting regulatory performance, market efficiency, and water resource management.

This project trialled a structured, hands-on approach to identifying and categorising LTV sites, aiming to improve data quality and reduce inappropriate water use in properties believed to be vacant.

2. Methodology

The project focused on a sample of **1,400 properties** extracted from a dataset of over 4,500 SPIDs provided by SES Business Water. The sample selection considered:

- Removal of unmetered sites
- Preference for external over internal meter locations
- Proportional representation of wholesale regions
- Meter size relative to volume
- Classification in vacant categories

SIC codes were excluded due to unreliability; instead, address descriptors were used to deduce property types (e.g., shop, trough, office). Field activities included site reviews, physical visits, and technology deployments (e.g., Limpet devices) to monitor consumption.

Our target was to establish and categorise vacant properties to allow better understanding and management using the following example criteria to allow appropriate action to be taken:

Work Segments	Definition	Value
Zero Consuming	Premise with meter not recording consumption.	547
Registration Vacant	Registered vacant with a SPID created in the market, post market opening and vacant at the point of registration.	383
Vacant with Consumption	Premise is vacant in the market, but meter is showing consumption.	225
Long Term Vacant	Vacant for a long, extended period of time.	187
Residual Vacant	Residual Vacant, would be a SPID placed into the market from market opening and vacant at the time.	58
Grand Total		1400

3. Project Steps Overview

The project followed a structured sequence of activities involving SES Business Water and Occutrace, with regular reporting and milestones aligned to progress.



Step 1: Initiation and Data Sharing

- Data sharing agreements signed between parties.
- SES Business Water provided a data extract of vacant SPIDs with specified attributes.

Step 2: Sample Creation and Segmentation

- Occutrace created a representative sample of 1,400 sites, segmented by:
 - Property type
 - Meter size
 - Vacancy and consumption status
 - Ownership type (e.g., landlord, private)

Step 3: Desktop Review and AI Automation

- Sample processed through Occutrace's AI Data Automation Model
- Initial trace activities identified:
 - Descoped sites (e.g., domestic conversions)
 - Recently occupied sites requiring no further action.
 - Targets for further investigation

Step 4: Hardware Procurement and Field Deployment

1. Hardware procurement recommendations made.
2. Field activities scheduled and commenced.
3. Limpet devices installed where eligible.
4. Ongoing monitoring and follow-up actions

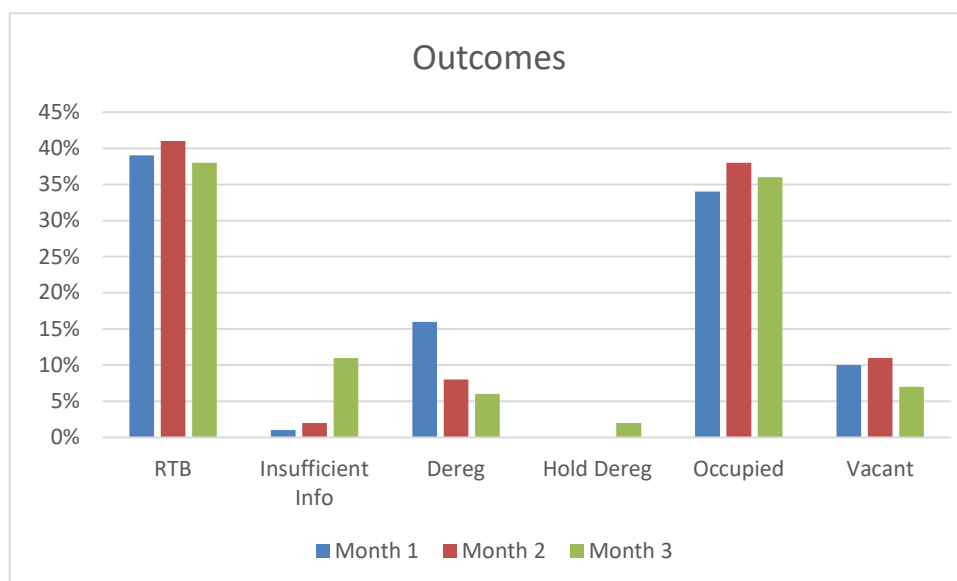
Step 5: Reporting and Review

- Regular progress updates and data reconciliations

4. Results & Analysis

4.1 Desktop Review & Analysis

Over three months, **1,402 sites** were processed through Occutrace's AI Data Automation Model and analyst-led desktop tracing. Each site was categorised based on traceability, occupancy indicators, and eligibility for further action.



Key Definitions

- RTB (Return to Business) and Insufficient Info: Sites that could not be confidently traced or verified through desktop analysis. These were excluded from field visits due to high likelihood of failure, typically caused by poor address data, redevelopment, or untraceable ownership.
 - RTB, the information provided wasn't sufficient to carry out trace activities.
 - Insufficient information, where trace activities were undertaken but didn't provide sufficient information to progress further.
- Dereg and Hold Dereg: Sites flagged for removal or pending further validation.
- Occupied and Vacant: These categories reflect the outcome of desktop analysis, where sites originally marked as vacant were reassessed using consumption trends, address verification, and tracing indicators. Some showed signs of potential occupancy and were reclassified accordingly, while others continued to show as vacant. These sites were prioritised for field investigation and potential device installation.

Approximately **44% of sites** (RTB + Insufficient Info) were excluded from field activity due to traceability limitations.

The remaining sites with clearer data and potential for device installation were progressed to the next phase.

4.2 Field Visits & Installations

From the original data set and desktop review, **630 sites** were identified for further investigation:

- **126 sites** classified as vacant.
- **504 sites** classified as vacant but potentially occupied (based on consumption or trace activity)

The transition from 630 sites to **134 visits attempted** was the result of a structured refinement process designed to maximise installation success and minimise operational barriers: -

Step 1: Feasibility and Practicality Assessment

Each site underwent a detailed feasibility review to determine whether a physical visit was viable. Key considerations included:

- **Address Verification:** Ensuring location accuracy to avoid failed visits.
- **Meter Accessibility:** Preference for external meters to reduce the need for internal access and customer coordination.
- **Installation Barriers:** Excluding sites with known safety concerns, complex access requirements, or unresolved data discrepancies.

Step 2: Wholesaler Approval

Sites were then cross-checked with wholesaler requirements. This stage introduced several challenges that impacted timelines and overall site selection:

- **Approval Timescales:** Delays in obtaining formal approval extended project timelines and reduced the number of sites that could be actioned within the reporting period.
- **Additional Costs:** Some wholesalers introduced charges for site visits or approvals that were not included in the original budget, limiting the number of sites we could progress.
- **Strategic Priorities:** Certain wholesalers were focused on their own strategic initiatives, such as smart metering rollouts, which constrained their capacity to support our project and influenced which sites were approved.

Step 3: Prioritisation for Highest Likelihood of Success

From the approved pool, sites were ranked based on likelihood of successful installation. This prioritisation reduced the list to **134 sites**, which were scheduled for attempted visits.

Role and Context of Batch 5

Batch 5 was introduced as part of a **collaborative initiative between SES Business Water, MOSL, and our team** to address shortfalls in installation numbers from earlier batches. This additional dataset:

- Originated from SES Business Water and MOSL's supplementary review of potential sites.

- Applied the same filtering and prioritisation criteria as the original dataset.
- This resulted in an additional 96 attempted visits, comprising sites from newly provided data and re-visits to properties previously attempted but deferred due to temporary access issues. These additional visits reflected similar patterns and challenges observed in earlier batches, such as access restrictions and data discrepancies.

In summary the reduction from 630 sites to 134 visits was driven by feasibility checks, wholesaler approvals (including delays, costs, and strategic constraints), and prioritisation for success. Batch 5 represented an additional effort using comparable methodology to boost outcomes after initial targets were not met.

	Worked (Visit Attempted)	Other		Vacant		Visits	Install	Occupied	Access /Demolished
		RTB	Insufficient Info	Occupied	Vacant				
Batch 1	30	0	0	18	12	30	9	9	12
Batch 2	32	5	5	10	12	32	13	10	9
Batch 3	40	5	5	15	15	13	2	9	2
Batch 4	32	0	0	23	9	10	1	2	7
Total	134	10	10	66	48	85	25	30	30
Batch 5						96	9	58	29
Total						181	34	88	59

Outcome

Despite our awareness that long-term vacant sites would present challenges, particularly due to their age and data degradation, we were still surprised by the extent of difficulty encountered. Across nearly **200 site visits**, only **34 Limpet devices** were successfully installed. This number would have been higher at **122 devices** if we included sites that appeared vacant in market data but were found to be occupied upon site visit, however, these were ineligible under the project scope.

In addition to occupancy status (51% occupied) we also encountered access issues where the meter was either located internally (10%) despite showing as external in market data or the site itself was demolished or in the process of being demolished.. The table below shows this breakdown:

Category	%
Access Issue	2%
Asset Issue	3%
Chamber Too Small	5%
Deregistered	2%
Health and Safety	4%
Internal Meter	10%
Meter Not Found	21%
Occupied Premise	51%
Original Meter Replaced	1%
Grand Total	100%

4.3 Limpet Monitoring Outcomes

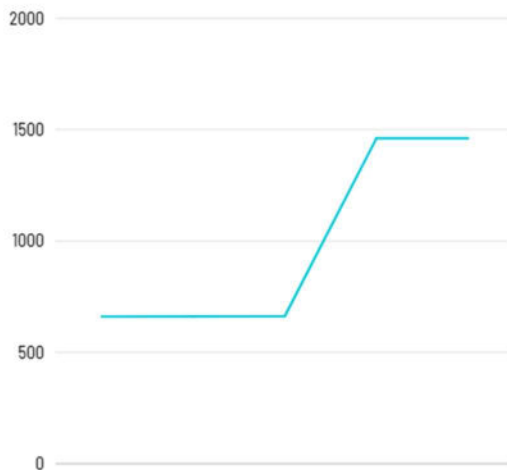
Weekly monitoring of the 34 installed Limpet devices has provided valuable insights into site activity and water consumption patterns:

- **15 devices** showed no change in consumption, supporting their classification as vacant.
- **13 devices** exhibited a slight increase in consumption, likely due to minor leaks, poor maintenance or running cisterns.
- **6 devices** showed a significant rise in consumption as shown in the graphs below, suggesting either re-occupancy or potential leakage. These have been investigated, with the occupancy confirmed. Graphs for these sites are included below to illustrate consumption trends.

In total, **9 devices** have stopped transmitting data since installation. This may be a temporary issue related to signal loss or may require site visits for further investigation. Potential causes include removal, accidental dislodgement, or tampering.

These findings demonstrate that, where installation is feasible, Limpet devices are an effective tool for identifying re-occupancy and leakage. This supports improved market data accuracy and enables proactive asset management.

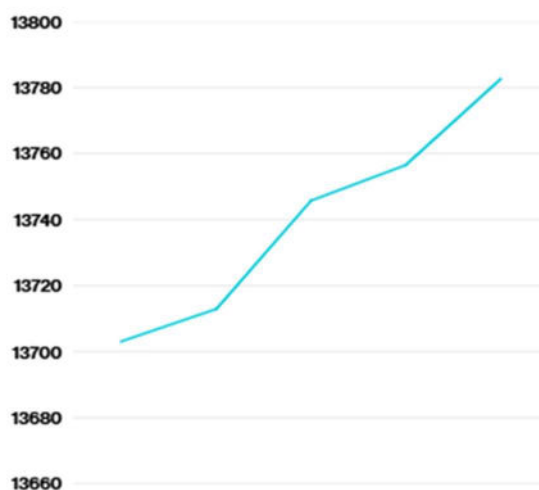
31 Lesbourne Road, RH27JN



Vacant Since	Install Date	Type of Property	Cubes Used	First Read	Last Read
01/09/2023	20/01/2025	Cafe	2.48	660.39	662.87

Shortly after installing the Limpet device, we observed a noticeable increase in water consumption. Further checks revealed the premises had reopened as a café, signalling a return of trade activity in the property.

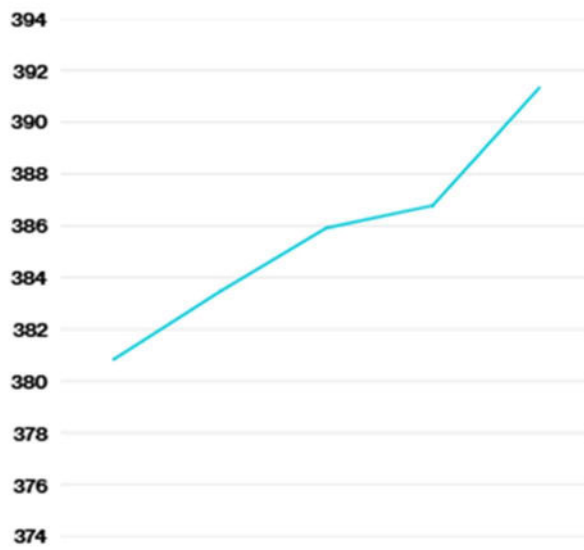
5 Manor Road, SM6 0BW



Vacant Since	Install Date	Type of Property	Cubes Used	First Read	Last Read
01/09/2023	18/02/2025	Care Home	79.45	13703.11	13782.56

Initially vacant at installation, a significant spike in consumption soon after prompted investigation, confirming the site is now operating as a care home, an important change given the high-water demand associated with such facilities.

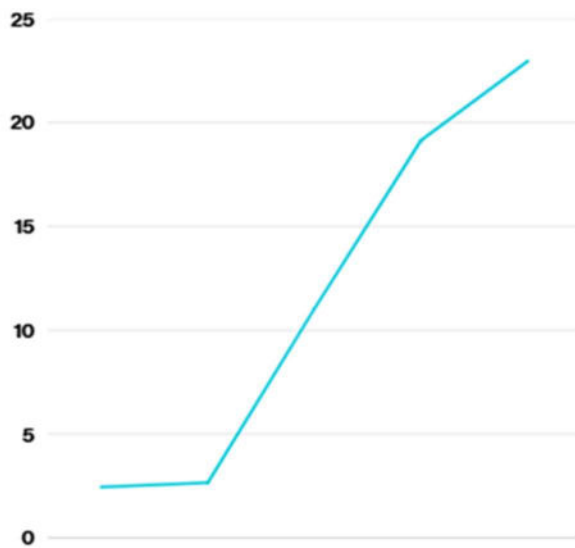
50 High Street, KT22 8AJ



Vacant Since	Install Date	Type of Property	Cubes Used	First Read	Last Read
24/06/2018	19/08/2025	Shop	10.48	380.84	391.32

Shortly after installation, consumption patterns indicated renewed activity. Verification confirmed the premises is now a retail shop.

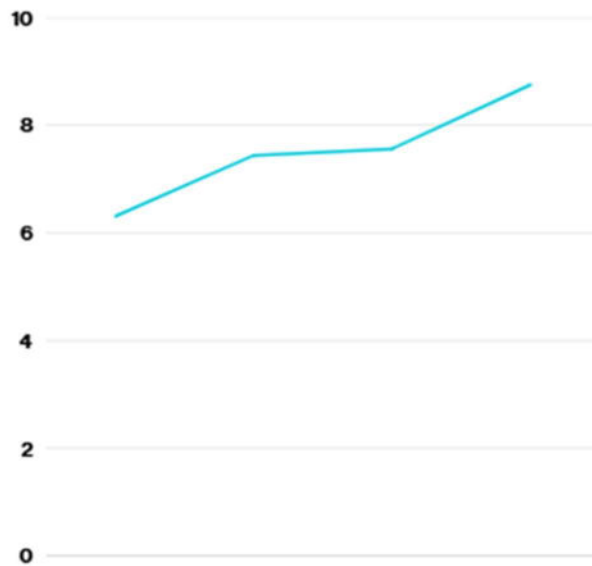
839-841 London Road, SM3 9DR



Vacant Since	Install Date	Type of Property	Cubes Used	First Read	Last Read
N/A	18/02/2025	Shop	20.51	2.45	22.96

Following installation, a sharp rise in water usage was detected. Subsequent checks confirmed the premises had reopened as a building supplies warehouse.

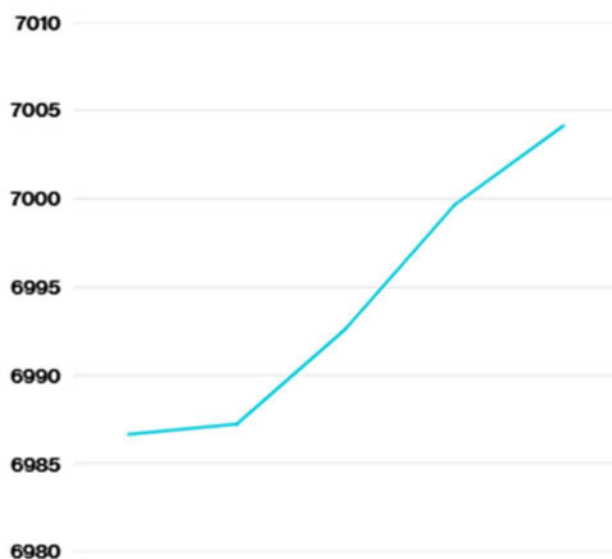
Unit 13A Fircroft Business Centre, TN8 6ET



Vacant Since	Install Date	Type of Property	Cubes Used	First Read	Last Read
01/01/1989	21/01/2025	Shop	3.12	6.31	9.43

In a similar case, data signalled renewed activity at the site. Checks confirmed the premises is now occupied as a shop.

Westcoats Farm, RH6 0ES



Vacant Since	Install Date	Type of Property	Cubes Used	First Read	Last Read
N/A	21/08/2025	Farm	17.47	6986.66	7004.13

A few weeks after installation, a gradual but clear increase in consumption was observed. Desktop trace activities confirmed the farm is now active again, indicating seasonal or operational changes in agricultural use.

5. Key Challenges

While the overall success rate was low, the project provided valuable insight into the specific areas where challenges were most concentrated. The largest single factor was **Occupied Premises (51%)**, followed by **Meter Not Found (21%)** and **Internal Meter (10%)**. This confirms that occupancy ambiguity and meter accessibility are the dominant challenges, reinforcing the need for improved data validation and pre-screening before site visits. These findings will help refine future strategies, such as having a plan on how to treat properties found to be occupied and exploring technology or process changes to address internal meter constraints.

5.1 Premises Identification Issues

- Poor or outdated address data made many sites difficult to locate, especially those vacant since market opening.
- Some properties had been converted to domestic use, demolished, or redeveloped.
- Landlord or owner unresponsiveness limited access, even at eligible sites

Impact: These issues resulted in high attrition from the initial sample and increased time spent on verification, reducing overall project efficiency.

5.2 Occupancy Ambiguity

- Intermittent use, recent occupancy, or faulty meters made it difficult to confirm true vacancy.
- These inconsistencies highlight the limitations of relying solely on market data.

Impact: Significant effort was required to validate occupancy, often through physical visits, which increased costs and extended timelines.

5.3 Wholesaler Coordination Barriers

- There was some reticence from certain wholesalers regarding the technology used in this trial. Feedback indicated a preference for integrated smart metering solutions, such as Sensis, rather than additional hardware installed within meter chambers. In some cases, this resulted in delays or reluctance to grant installation permissions, and occasional complaints about installations that were compliant and within agreed parameters.
- Delays in obtaining approvals for site installations, which impacted project timelines and limited access to priority locations.
- Rejection of logger installation requests in some instances, particularly where meters were flagged for inclusion in wider meter replacement programmes. This contributed to restricted deployment opportunities and reduced overall coverage.
- Suspected post-installation removal of devices, which is still under investigation. Early indications suggest some Limpet units may have been tampered with or removed, potentially by meter readers or during routine maintenance activities.

Impact: Coordination challenges limited the number of successful installations and introduced uncertainty around long-term data integrity.

5.4 Technology Constraints

- Limpet devices were only compatible with certain meter types and pit configurations, which limited deployment options.
 - Chamber Depth and Layout: Installation required sufficient space for the Limpet to sit on top of the meter while allowing the lid to close securely and ensuring the meter face remained fully visible for manual reads.
 - Meter Type: Devices could only be installed on analogue meters, excluding digital or smart meters.
- Signal Reliability
 - Antenna Positioning: Signal strength was dependent on correct aerial orientation; poor positioning could result in data loss.
 - External Factors: Mobile network outages and tower issues occasionally caused failed installations, even when the device was functioning correctly.



- Faulty or inaccessible meters further reduced eligibility.

Impact: Technology limitations compounded the effect of data and access issues, restricting overall project scope.

6. Conclusion & Recommendations

The deregulated NHH water market introduced shared responsibilities for maintaining accurate property data, yet Long-Term Vacant (LTV) properties remain a persistent challenge, impacting regulatory compliance, market efficiency, and water resource management. This project trialled a structured, hands-on approach to identifying and categorising LTV sites, aiming to improve data quality and reduce inappropriate water use in properties believed to be vacant.

The project began with a sample dataset of **approximately 1,400 properties**, but after extensive data cleansing and validation, removing traced occupancy, deregistered sites, demolished properties, and those with internal assets, the number of properties considered potentially eligible for further investigation reduced to **around 630**. This refined list underwent more detailed analysis with **136 sites prioritised and scheduled for visits** based on feasibility and likelihood of successful installation.

Following a low success rate on installations from these initial visits, an **additional 96 visits were added late in the project** to increase coverage and try to improve outcomes. Despite this effort, the overall installation success remained limited due to compounding challenges encountered during site visits.

Although the overall installation success was lower than anticipated, the trial delivered **critical insights** into the operational and data challenges that drive inefficiency in LTV management. Most importantly, it demonstrated that **occupied premises represent a substantial revenue recovery opportunity**, which, if integrated into future strategies, could offset the costs of unsuccessful visits and improve future project viability.

This experience underscores that resolving LTV issues cannot rely solely on market data. It requires a **combined approach**—integrating vacant and occupied property workflows (and potentially gap sites), strengthening data validation, improving stakeholder coordination, and adopting flexible technology solutions. These lessons provide a foundation for designing future strategies that deliver both regulatory compliance and commercial benefit.

Recommendations

This project has highlighted the complexity of managing Long-Term Vacant (LTV) properties within the deregulated NHH water market and the limitations of relying solely on market data. While the initial objective was to improve data quality and reduce inappropriate water use at properties believed to be vacant, the project revealed broader insights into data integrity, stakeholder coordination, and operational efficiency. These findings point to opportunities for improving regulatory performance, market accuracy, and commercial outcomes. The following recommendations focus on addressing systemic data challenges, leveraging revenue recovery opportunities, and embedding a more integrated, cost-effective approach to property status management in future strategies.

1. Integrate Vacant & Occupied Workstreams as a Single Operating Model

Due to the volume of occupied properties discovered (51% of outcomes) treat LTV activity as a dual-objective programme, providing the potential benefit of revenue generation to offset costs or project:

- Vacancy or de-registration confirmation and consumption assurance
- Rapid reconnection/billing for occupied sites

2. Recognise that Quality of Market Data is still a Material Barrier

Poor address data, asset mismatches, and deregistered properties caused major attrition from the initial dataset and impacted the efficiency of visits. While continued collaboration across all stakeholders is essential to improve data quality in the long term, there is an immediate need to agree on pragmatic approaches using the best available information to:

- Work collectively to standardise addresses (e.g., UPRN/USRN) and reconcile wholesaler asset data.
- Deregister obsolete properties through desktop tracing where there is no evidence of continued non-domestic use.
- Use available indicators—such as last meter read date, historic consumption patterns, and outcomes of trace activities—to rank sites by likelihood of vacancy or occupancy.
- Establish stakeholder agreement to make decisions based on this data (e.g., confirm vacant or occupied status, deregister properties, or share costs of site visits where uncertainty remains).
- Continue enriching contact details for landlords/owners to improve access and reduce wasted visits.

3. Field Triage & Visit Efficiency

Although installation success was limited due to internal meters, small chambers, and access issues, the visits themselves provided significant value by confirming actual site conditions and feeding accurate information back into market data. This insight helps improve future targeting and reduces uncertainty. The learning is that the value of a visit depends on the intended outcome:

- If the goal is to obtain a meter read and the property is likely vacant with an internal meter, prioritisation should reflect the likelihood of success.
- If the goal is simply to confirm vacancy, a visit may still be worthwhile even where installation is unlikely.
- Apply clear Go/No-Go criteria to filter out properties where installation is not feasible, while recognising that visits can still deliver data benefits.
- Use pre-booked appointments and escalation steps for non-responsive owners.
- Record visit outcomes consistently (e.g., Occupied, Not Found, Internal Meter, Chamber Too Small, Health & Safety, Asset Fault) and include photos to improve data accuracy.

4. Wholesaler & Retailer Engagement

Delays and reluctance to approve installations impacted timelines and coverage. For future success, wholesalers and retailers need to work together to support the adoption of monitoring technologies, or provide clear reasons where approval is not possible. This collaboration will help unlock benefits for all parties.

- Agree clear guidelines for approval processes, including turnaround times and documented reasons for any refusals, to improve transparency and predictability.
- Address concerns about additional hardware in chambers by aligning on acceptable technologies and exploring alternatives where needed, while recognising the preference some wholesalers have for integrated smart meters.
- Highlight benefits for retailers: Limpet data can be used as market-approved reads, reducing the need for meter reader visits and enabling monitoring on hard-to-read meters, delivering operational and cost efficiencies.
- Maintain device stewardship protocols, including tamper-event alerts, seal/tagging, and post-installation checks, with collaborative investigation of any suspected removals to ensure lessons are learned and processes improved.

5. Scale with Learnings, Not Just Volume

Scaling up without applying the lessons from this project would be costly if the focus is only on installing technology. However, if future activity is designed around a wider set of outcomes, such as confirming property status and improving market data through fact-based site visits, the value can be significant. Some upfront prioritisation is still essential to manage costs effectively.

- Use available data to prioritise visits (e.g., last read date, consumption history, trace outcomes) so resources are focused where they add most value.
- Apply sampling by region, property type, and meter class to ensure representative learning and predictable results.
- Pilot revised data filters and access approaches before scaling to confirm efficiency and reduce cost per outcome.

6. Monitoring and Technology Benefits

Even with a relatively low volume of Limpet installations, the technology proved highly effective in identifying new occupiers, detecting leakage, and confirming occupancy status. This demonstrates that where technology can be deployed, it delivers clear operational value and should be considered a beneficial investment.

- Embed Monitoring into Operations to ensure that monitoring of technologies and changes in results are built into operational processes so that occupancy or leakage changes can be quickly actioned.
- Expand Scope: Include sites with ambiguous occupancy status to provide early indicators of re-occupancy or leakage.
- Leverage Insights: Use monitoring data to inform proactive interventions for leakage and occupancy changes, strengthening the business case for broader adoption.