

# Digitising the Customer Journey of Heat Pumps in Social Housing

**Project Lead:** Switchee Ltd

**Funding:**

**Partners:** Leeds Beckett University, Daikin Airconditioning UK

£468,656



## The problem: How to improve the customer journey of heat pumps

Heat pump systems need to be operated in a different way and have different heating strategies to traditional fossil fuel boilers. There is a lack of awareness of the benefits heat pumps can provide, and general skepticism in some communities of what is seen to be a new technology.

### The solution

By providing tools and research to overcome barriers relating to heat pump acceptance, lack of awareness and consumer behaviour, residents in social housing will be supported to optimise their heat pumps.

This project aims to improve the heat pump customer journey for residents in social housing by enabling Switchee's Econa Smart Thermostat to communicate with Daikins' cloud-connected Altherma heat pump range. This will allow automatic detection of performance issues and interpretation of fault error codes thus increasing the efficiency of engineers' property visits and minimising resident disturbance. It will also display tailored heat pump advice through the Econa thermostat to support optimal heat pump performance and operation by residents.

“ As a team, we are thrilled to be taking part in the Heat Pump Ready Project that will supply Social Housing providers with tools and research to overcome the current scaling barriers relating to heat pump acceptance, lack of awareness and consumer behaviour. ”

**Monique Bennett**  
Project Manager, Switchee



## Increasing accessibility through smart heat pumps and thermostats

### What are we going to do?

Switchee will partner with Daikin and Leeds Beckett University to further innovate its latest smart thermostat, Econa. Collaborative R&D between Switchee and Daikin will result in the release of third-party Modbus communication integration with Daikin heat pumps and a Switchee Econa that is Modbus enabled and capable of reading Daikin's error messages. Error messages and heat pump data will be displayed to residents via the Econa including tailored advice on how to optimise performance and educational material to upskill new residents.

Social and behavioural research conducted by Leeds Beckett University will directly inform the content and presentation of the educational material and heat pump advice.

### Why is this an improvement on current solutions?

Currently, cloud-to-cloud applications exist for heat pump fault code extractions, but current innovations require WiFi connectivity in the end-user's home. This has caused issues for Daikin in the past where WiFi penetration in social housing is low and data can be lost due to residents changing their WiFi passwords. Modbus integration with a Switchee can solve this since the Switchee Econa is uniquely cloud-connected via a GSM SIM which has 99% coverage across the UK.

This innovation will enable stable communication between the heat pump, resident, housing association and engineers when needed.

### What would success look like?

High resident engagement, reduced heat pump fault resolution times, and increased sales leads for Switchee Smart Thermostats.



### How will this project help towards the target of installing 600,000 heat pumps per year by 2028?

Within the social housing market, key barriers to heat pump deployment include resident refusals and distrust, concerns about installation quality and high costs, lack of familiarity with the technology and variabilities in performance of the heat pump.

Outcomes from this project will supply social housing providers with tools and research to overcome the current scaling barriers relating to heat pump acceptance, lack of awareness and consumer behaviour, to deliver utilities savings for residents and housing associations.

The Optimised solutions development stream of the Heat Pump Ready programme supports the development of innovative tools, technologies and processes to overcome specific barriers to heat pump deployment in the UK. This stream supports solutions aiming to reduce the life time cost and increase the performance of domestic heat pumps, minimise home disruption whilst providing high quality installations, develop and trial financial models to support heat pump deployment, improve the heat pump consumer journey and provide a smart and flexible home energy system.

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## Key Findings

- There is no standard protocol for heat pump error codes to be shared anywhere in the sector as there is in the boiler sector, which is a barrier. Policy has a role to play in the standardisation of interfaces to unlock innovation within the sector.
- Generally, there has been good resident engagement so far. Some residents are not engaging and they appear to be those with non-best practice usage patterns, from the analysis of last year's heating data.
- Some residents are suffering from fuel poverty and simply cannot afford to use their heat pumps in an efficient manner. Education in this scenario is not helpful and can be deemed insensitive.

## Digitising the Customer Journey of Heat Pumps in Social Housing

### Project Progress (Autumn 2023)

#### What progress have we made so far?

Switchee has successfully developed the Modbus protocol for heat pump fault code extraction and integrated it into our code base to enable communication of faults to housing associations. With support from Leeds Beckett University we developed communications materials to advise residents on how to adjust their behaviour, delivered through the thermostat and app.

The field trial has begun and the Switchee dashboard shows heat pump analytics from connected homes. Algorithms have been developed to alert users on detected heat pump performance issues and inefficient user behaviour.

#### What barriers have we identified and how has this changed our approach to delivering our project?

Finding a housing association to work with which had the appropriate heat pumps proved challenging, reducing the trial size from 100 to 57.

There were some delays in firmware development due to difficulties in collaborating with our chosen heat pump manufacturer, and delays to installation of diagnostic equipment in the field due to difficulties in securing heating engineers experienced in heat pump installations.

#### What are our next steps?

We are now entering the final quarter of the project, focused on testing our innovations in trial homes. We will continue to analyse usage and performance data from heating systems and provide advice to help residents use their heat pumps efficiently, saving energy and money.

Provision of advice and measurement of its impact will continue through to the end of the project.

