

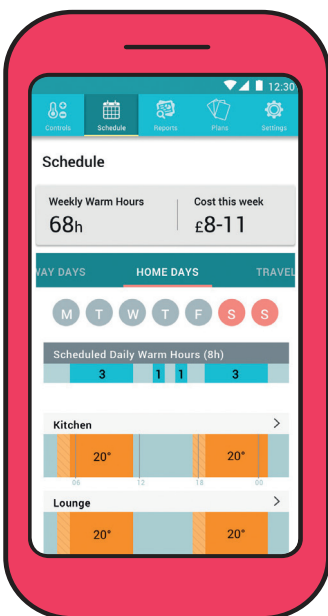
**Industry insight:**  
The delight of better control

## How digital can make us cosy at home and cut carbon

Home heating: the problem everybody has, but no one knows how to fix. People find their heating controls confusing and hard to use. Nearly every household has problems with drafts, damp, overheating, or something else. Most put up with a below par heating experience because they don't know how to improve it.

Our research has shown that giving people better control over their heating can help them get much more comfortable and open the door to cutting carbon.

Over the last few winters, we created a 'Living Lab' that gave one hundred households the power to control the temperature of each room in their home from their smartphone. People loved having better control, though they used it in very different ways. The choices they made about how they wanted to heat their homes showed us lots of ways to give them better experiences from their heating.



The emergence of smarter heating control is clearly great news for consumers. What may surprise people working in the energy sector is that giving consumers better control over their heating could have a profound effect on industry too. The way energy retailers, product manufacturers and networks respond will determine whether this effect is a threat or an opportunity.

### Smart Controls = Happier Consumers

For the households in our Living Lab, having greater control over their heating was delightful in many ways. People could change the temperature in each room to fix problems they had given up on. Suddenly they could get comfortable in rooms which had felt too hot or cold. They could set different rooms to different temperatures, so everyone could get comfortable without arguing about the heating. Just as important, they could do all of this conveniently from their phone saving the time and effort of struggling with their complex, old controls.

Different people valued different things when it came to their heating, but improving control seemed to benefit everyone. These simple, unexpected improvements delighted and amazed people, just as many innovations do. The experience was so much better to the extent that they found it hard to see why they would ever want to go back to their old controls. In the future, energy retailers may find it easier to attract and keep customers by offering them better control over their heating. The way consumers chose to use this advanced control could show manufacturers how to improve their heating products.

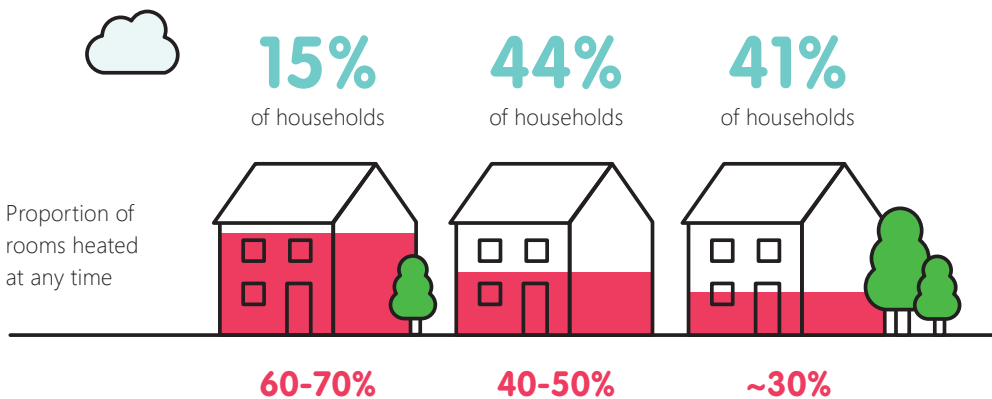
## Smarter control wasted less energy

When we gave people better controls, they chose to use less heating, without sacrificing their comfort. Nearly everyone chose to heat fewer rooms, with 85% deciding to heat less than half of their home. However, they did so for very different reasons.

People who cared most about keeping their costs low were delighted that they could use their controls to save energy. They used less heat in areas where they didn't spend much time and turned their heating off if they were going to get home late. In contrast, people who were more focused on their personal comfort enjoyed pre-heating their home, so that it was warm when they got back.

People also varied the temperatures they used around their home. They kept shared rooms, like lounges and kitchens, warmer than less frequently used spaces like spare rooms, utility rooms and halls.

Smarter controls also provide data that can be used to improve people's experiences of heat at home. We used the data to find households who could not get the heating they wanted from their systems, for instance to get warm enough in their lounge on a cold evening. Then we showed them how we could upgrade their heating system to solve their problem, for instance by installing a larger radiator, something our models showed could improve comfort and reduce running costs. People were very open to paying businesses to use and apply their data to give them better experiences from their heating.



## Control opens the door to buy a warm home and cut carbon

Previously, people had no effective way to control how much they spent getting the comfort they wanted. Some spent time adjusting their heating to try and save money but resented the effort. Others preferred to save the time but paid for the convenience of leaving their controls alone by paying for heating they did not use.

We used smarter controls to offer people the chance to pay a fixed price for the comfort they wanted through a bespoke 'Heat Plan', designed with data on how they heated their home and what it cost to do this. Most people found this easy to understand and around half chose to buy one. We discovered what people paid for this type of heat service, what they liked and how to improve plans in future.

We also found that selling heat as a service like this could create a new way to sell low carbon heating. People cared more about their experience using heating than how it was delivered. As long as they got the comfort they wanted for a price they were willing to pay, they were open to replacing their gas boiler with lower carbon alternatives such as: a heat pump, district heat, a hydrogen boiler or anything else.

### Next steps

We're using our Living Lab to help pioneering businesses learn how to design high quality, low carbon energy products and services that consumers love. Get in touch to find out how you can get involved.

Find out more, visit: [www.es.catapult.org.uk](http://www.es.catapult.org.uk)

**Energy Systems Catapult supports innovators  
in unleashing opportunities from the transition  
to a clean, intelligent energy system.**

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