'Smart' devices
The emerging user experience

HCID 2015

By 2020 there are projected to be using up to 26 connected devices for every person on the planet*

We wanted to learn more about the implications for user experience…

Four areas of learning

Smart versus Connected

Multiple devices
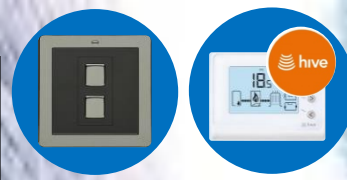
Vicarious caring

Barriers to adoption

In-home interviews and product tours with six participants in four households with two or more of the following devices

Households we visited

Natalie and Andy

Connected devices help Natalie feel more secure and control spend

- Natalie is a waitress working nights
- Andy is an air steward away 2 or 3 nights a week
- Awkward location of light-switch resulted in search for wireless lighting
- Natalie got Hive 'for free' with British Gas
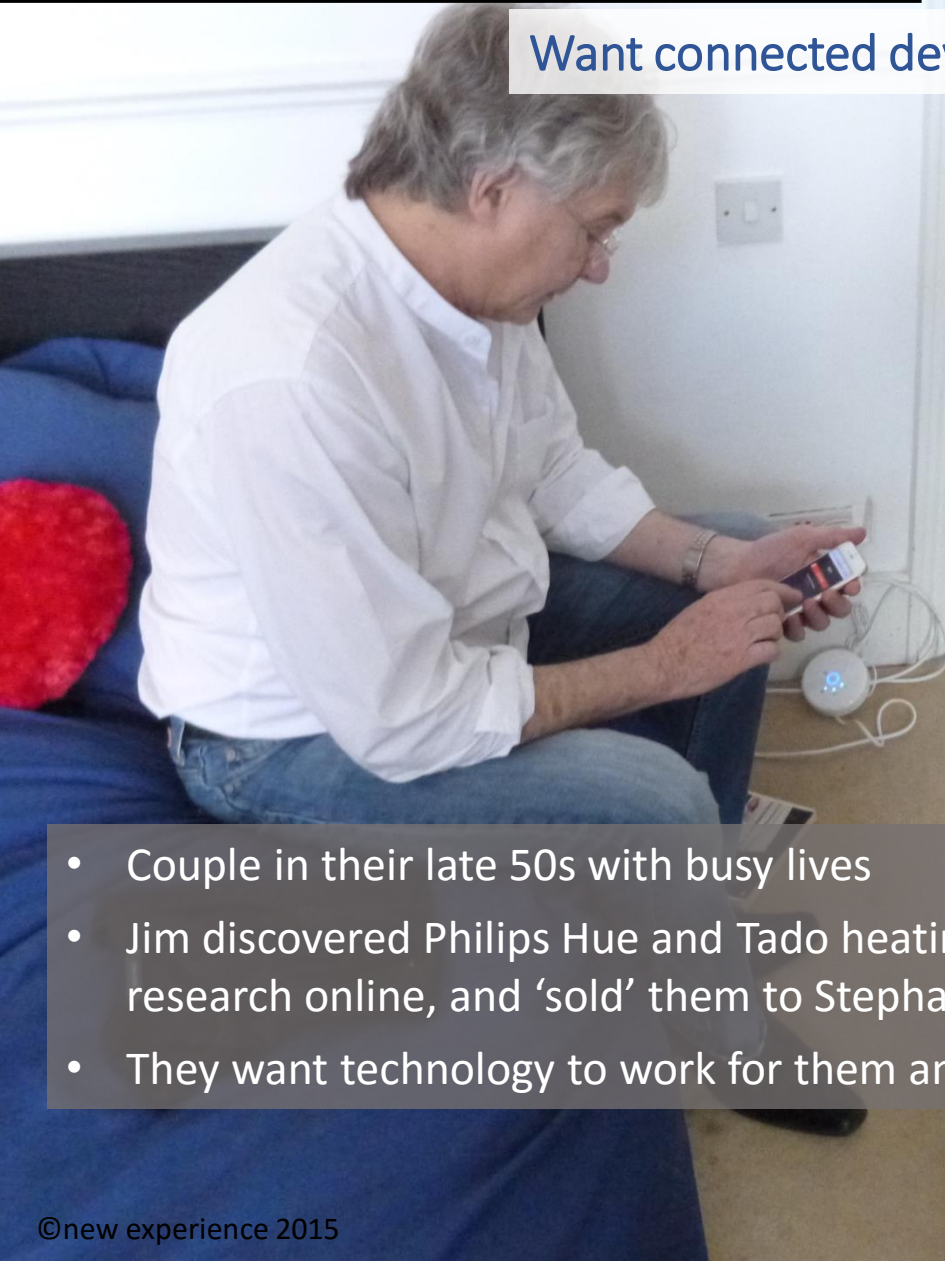- Now Natalie feels more secure and in control

Mike

Devices let him live independently and enhance his home

- A range of disabling conditions
- Takes a lot of medication and worries about waking
- Started with a wireless thermostat then waited for Nest
- Foscam IP cameras and Nest smoke alarm make him feel safer
- 'Paints' his walls with Philips Hue
- Monitors health with Withings blood pressure monitor and Fitbit
- Technically very confident but still struggles at times

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Jim and Stephanie

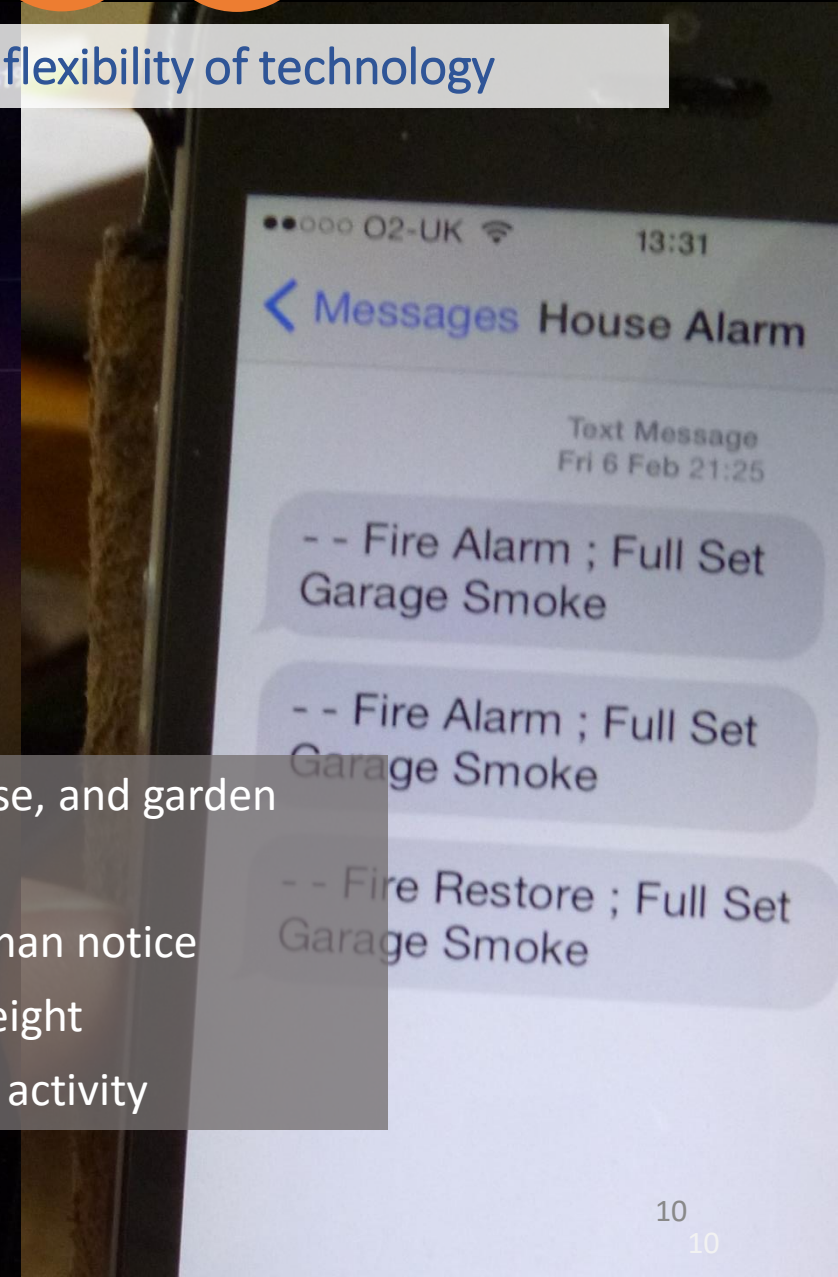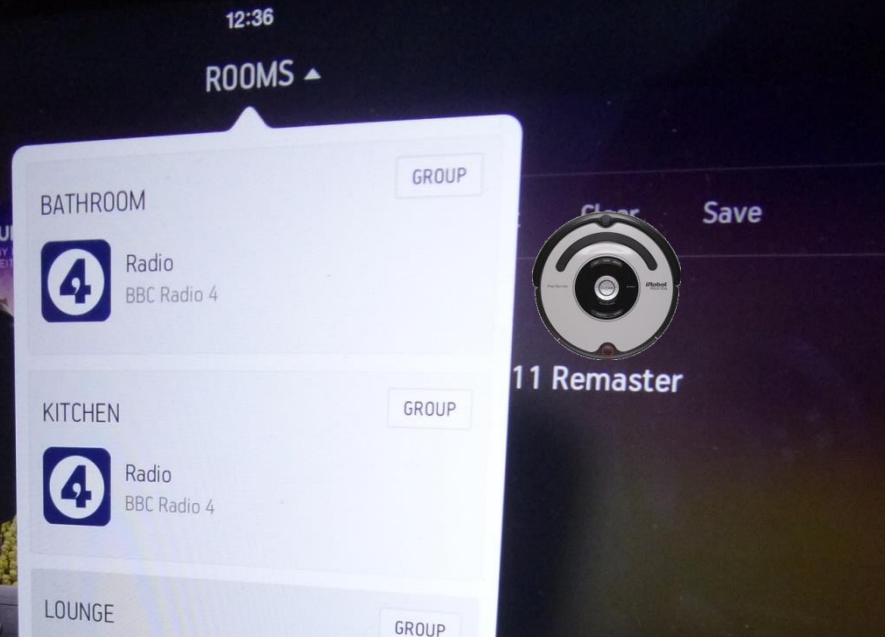Want connected devices to think and act for them

- Couple in their late 50s with busy lives
- Jim discovered Philips Hue and Tado heating controls through research online, and 'sold' them to Stephanie
- They want technology to work for them and be light touch

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Peter and Sue

Prepared to trade quality for the flexibility of technology

- Chose Sonos sound system to use all around house, and garden
- Hive catered to their unpredictable occupancy
- Fitted Pyronix security system after receiving Osman notice
- Got Withings scales and Fitbit after putting on weight
- Unlike others, choosing new technology is a joint activity

A broad range of real or perceived benefits

Saving money

Reducing effort

Exerting more control

Feeling more secure

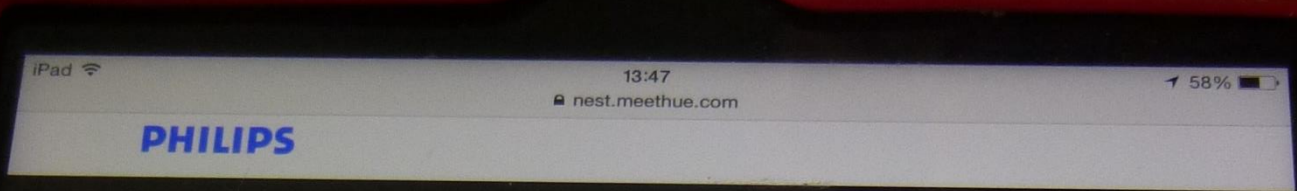**Being more comfortable**

Enhancing the home experience

Findings

'Connected' does not always mean 'smart'

- Expectation created by industry of 'smartness'
- Tado is smart but Hue can be dumb
- Truly smart products make intelligent inferences
- Peter and others play with IFTT

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When devices connect to each other new possibilities emerge

- 'Works with Nest' lets Mike connect Nest Protect to Philips Hue
- But Mike can't synch Philips Hue with Syfy channel
- As people get more devices their desire for inter-operability will grow

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As the number of connected devices increases people will desire a simplified, consolidated interaction

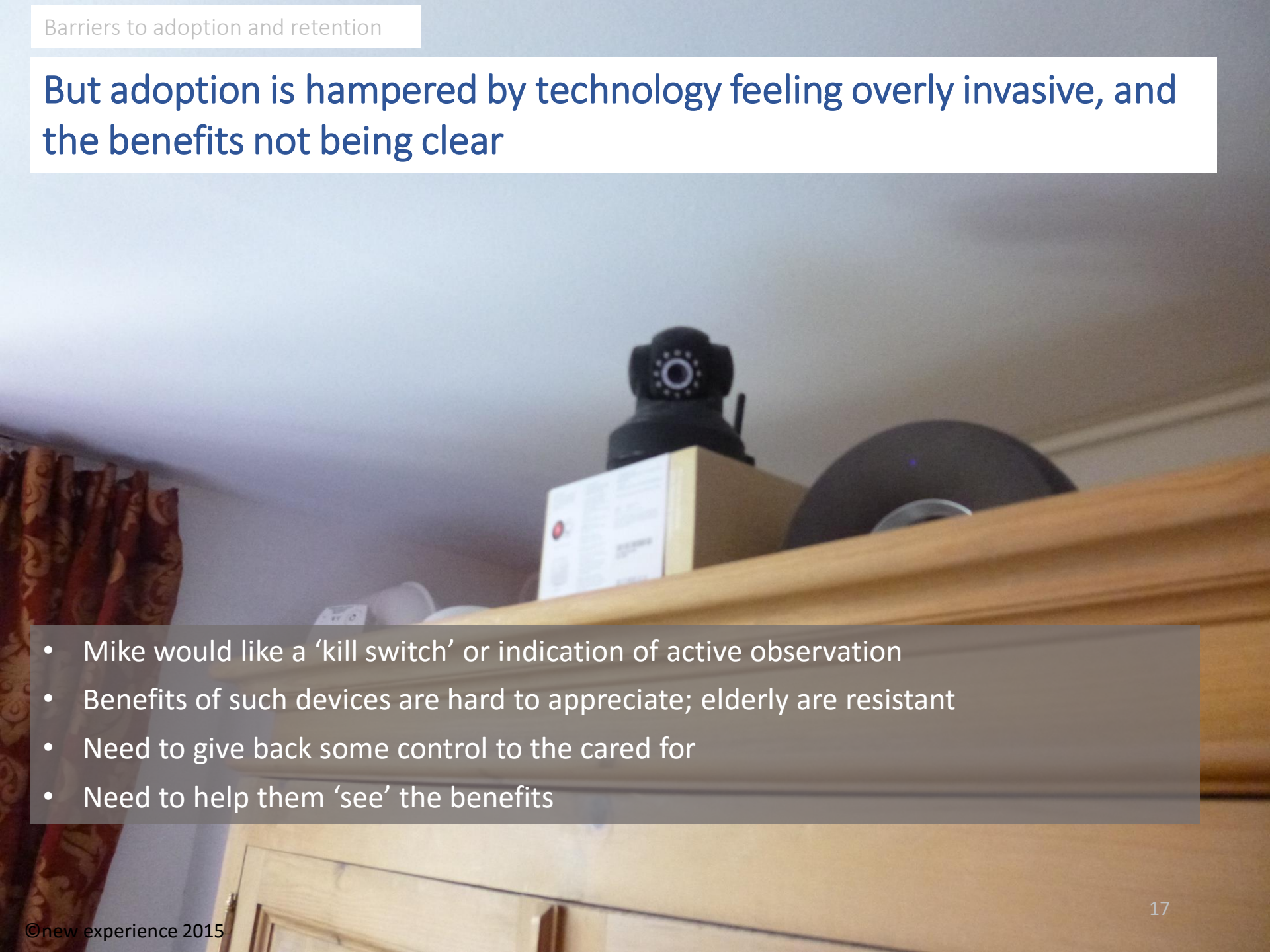Hue: give me some soothing lighting while I read on the sofa

- Peter is frustrated at 'lack of common standard'
- Can use Spotify through Sonos app but can't integrate his weight, exercise and food consumption data
- Control through a single app or family of apps
- Voice control offers an alternative form of unified interface

http://myharmony.com/discover/living-home/

Connected devices have huge potential for supporting vulnerable people and their carers

- Mike and carer have created an alert system
- Issue of cared-for not wishing to burden carers
- Opportunity to help carers see unspoken cues
- Potential to make inferences and alert carers
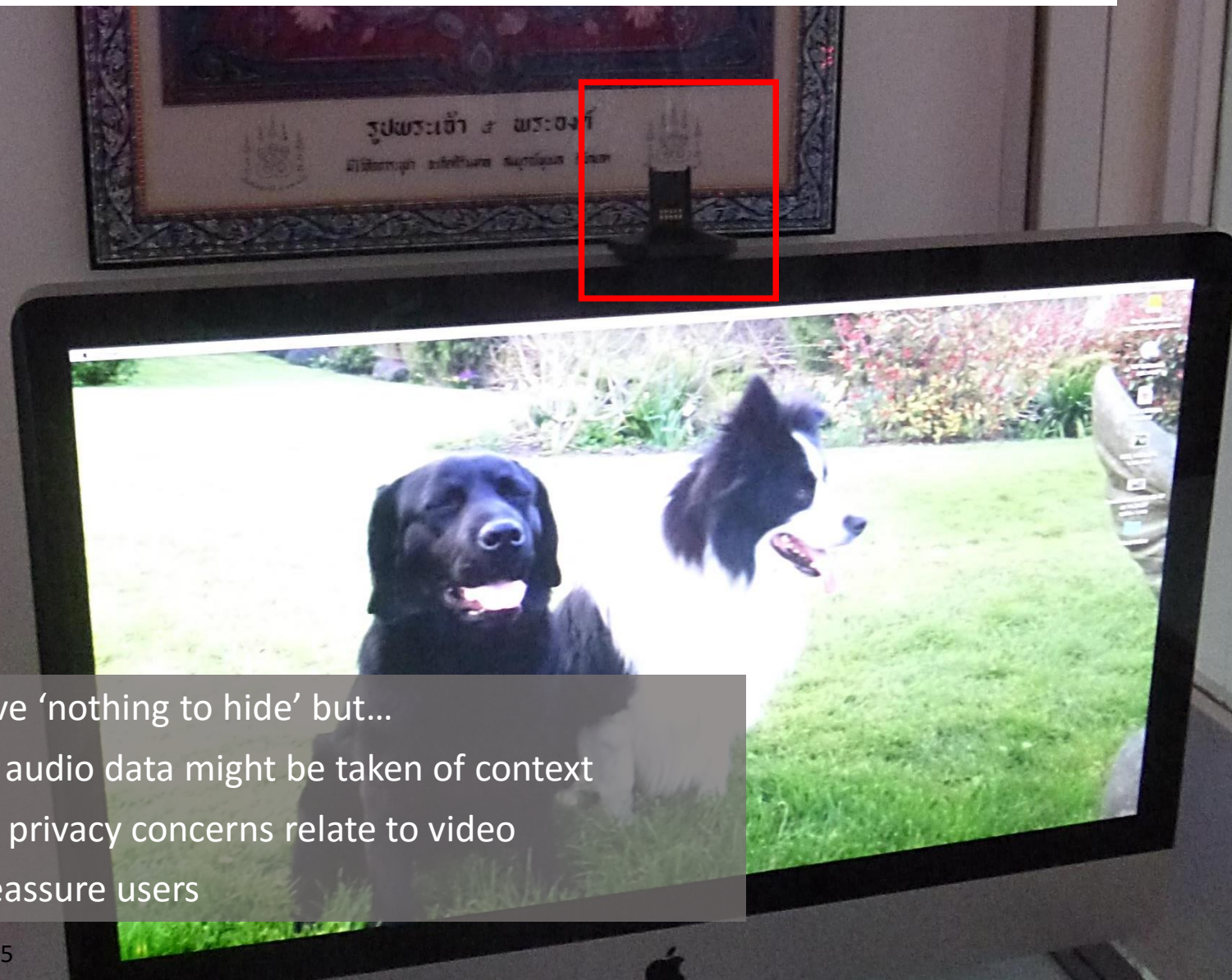- Some products like 3rings exploring this space

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But adoption is hampered by technology feeling overly invasive, and the benefits not being clear

- Mike would like a 'kill switch' or indication of active observation
- Benefits of such devices are hard to appreciate; elderly are resistant
- Need to give back some control to the cared for
- Need to help them 'see' the benefits

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People are quite blasé about what happens to usage data from their devices

- People don't think about what happens to their data
- Can't see why their data is of interest
- Irony that people use devices to feel more secure
- Need for transparency to avoid backlash

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But they are anxious about how some data could be misinterpreted by authorities

- People have 'nothing to hide' but…
- Video and audio data might be taken of context
- Additional privacy concerns relate to video
- Need to reassure users

Connected devices risk some users becoming disempowered

- While one person invests time; others can become disempowered and defer to the 'main' user
- Basic amenities like light and heating can become inaccessible

Systems need to accommodate other users like guests and children

- Need for temporary revocable access
- Need for levels of permissions
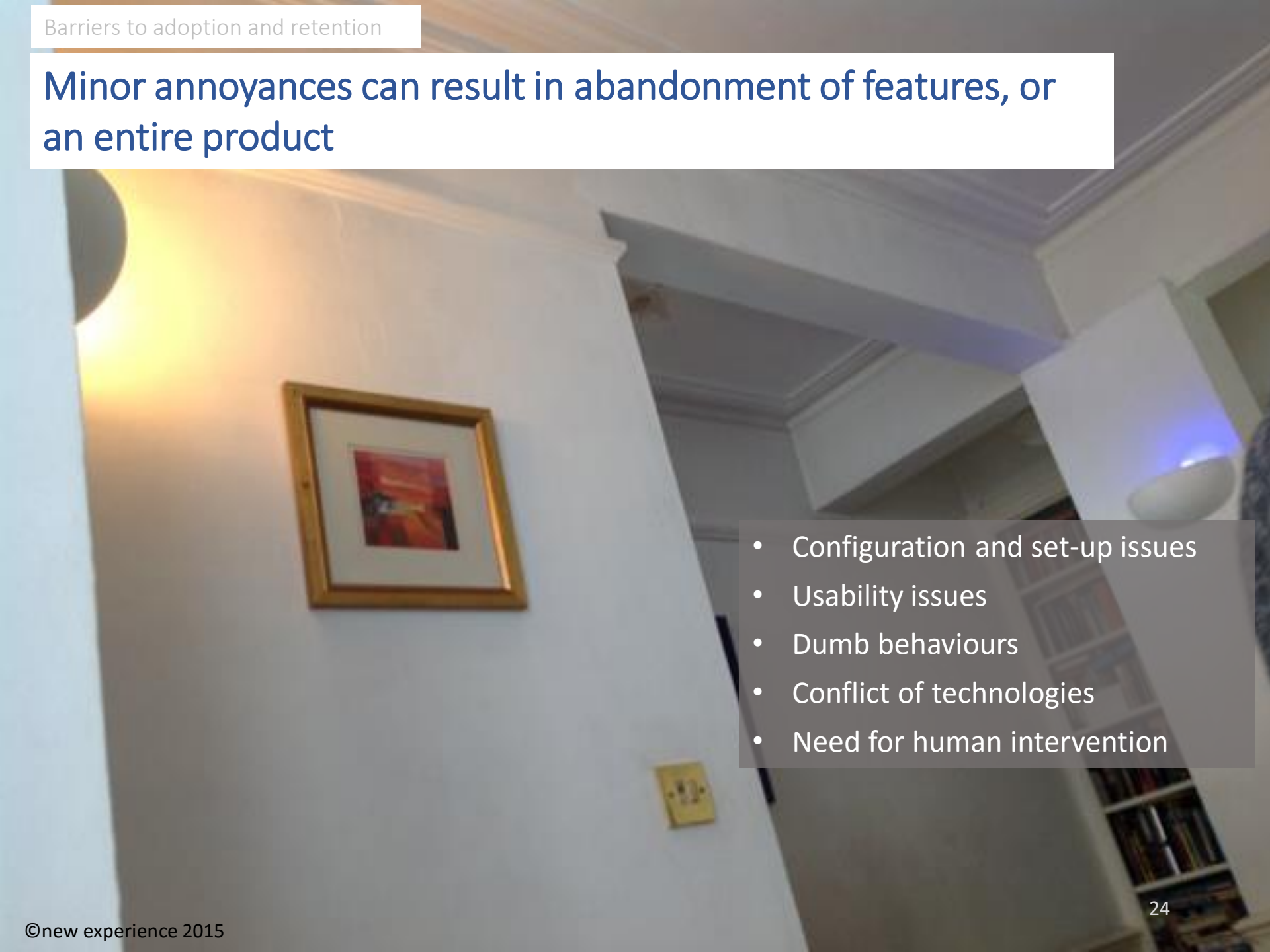- Need for accessible physical controls

tado°

Real or perceived bureaucratic hangovers are preventing adoption of some services

- Data protection

- Insurance

- Licensing

- Compatibility

Router is the bottleneck and potential point of vulnerability

- Limited LAN connections

- Cable and gateways clutter

- Connectivity lost when router crashes

- Security breaks down if router disabled

Minor annoyances can result in abandonment of features, or an entire product

- Configuration and set-up issues
- Usability issues
- Dumb behaviours
- Conflict of technologies
- Need for human intervention

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So... what to be thinking about

Smart versus connected

what are the ways to make your product genuinely responsive to its users needs?

Multiple devices

what connections between your product and others will make new uses possible?

how will you support a simplified interaction with your product as well as others?

Vicarious caring

how can you create an experience that addresses the needs, concerns, difficulties and inhibitions of both the vulnerable and their carers

Barriers to adoption

how will you ...

get people to 'see' the benefits of your product?

reassure customers about use of their data?

ensure that your product works for all types of user?

address bureaucratic blockers, work around router limitations , eliminate glitches that can undermine the experience for early and late majority?

Thank you