

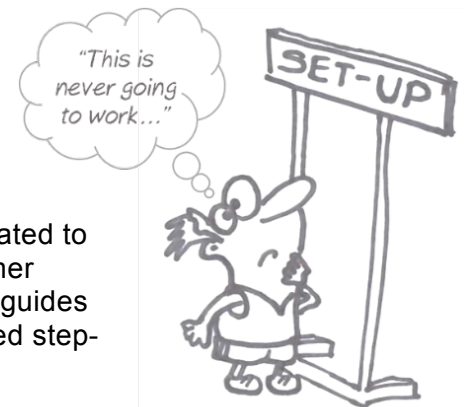
## Top 10 tips for designing smart, connected products

As the Internet of Things (IoT) emerges, we've spent the last two years conducting user research into smart, connected devices. Our research has ranged from 12-month longitudinal in-home studies, to quick, lab-based usability studies. Even at this early stage in the game we've learned a lot about what can make the difference between a successful IoT user experience and one that won't ever get off the ground.

A lot has been written about issues like privacy and security but we wanted to give you a view from our own research that may provide some food for thought.

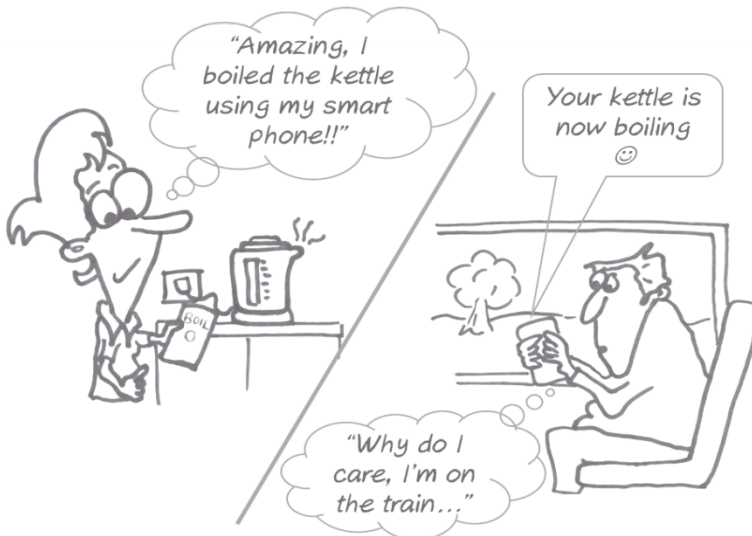
Here are 10 tips you may find helpful as you build your products and strategy for the IoT.

- 1. Make sure your product looks great and won't disrupt the aesthetics that your customers may have carefully cultivated.** We've seen early and late-majority users who were very interested in a smart product's functionality but were put off by its physical design. Perhaps early adopters would be less concerned by appearance – but who wants to limit appeal to this niche market? We've also seen some people forego the internet connectivity of their product rather than plug an unsightly gateway into their router, adding more cables and clutter. And this only gets worse when different products each come with their own gateway.
- 2. Reassure potential customers of continued service and support.** When key functionality of the product is delivered through the Cloud we've seen people become wary of being left with an expensive 'dud' if the service stops in future or is interrupted. The less well known your brand, the greater may be their concern. Marketing and communications must provide the right reassurance.
- 3. Don't let set-up become an insurmountable hurdle.** We've seen smart products that are easy to use but complicated to get connected, potentially resulting in lengthy calls to customer services. Contrary to what you hear, people do refer to user guides when they get stuck. Intuitive set-up is best, but well-designed step-by-step support in a user guide can be invaluable.
- 4. Don't assume all your customers have a router.** We've come across people who have given up on their landline internet connection in favour of using their smartphone as a WiFi hotspot. If your product is for the home you may want to consider whether your product should use a SIM card to connect directly to the internet instead of relying on WiFi?
- 5. Help users learn how your product is 'smart' and not just 'connected'.** What makes your product smart may not be apparent to its users, especially those who didn't themselves choose it, or have the opportunity to read the packaging, or experience the welcome 'tour'. Your product needs to make its smart functions 'visible' to users. We've observed people using their smart product pretty much like they used their old one (other than controlling it through their phone), so failing to benefit from smart new functions, or becoming confused by their consequences. We've also seen people using smart products in a sub-optimal way, either through



lack of awareness or because of the perceived effort involved. Your product needs to create meaning out of the data it gathers and processes, to nudge people to use your product optimally while minimising the effort they must expend to do this.

6. **Support the roles of multiple users and the ways they interact.**



Mr & Mrs Brown enjoying their new smart kettle...

Your smart product will be used by different people with different needs, and with varying levels of familiarity and confidence in their ability to use it. How will secondary users differ from the primary user? What are the needs of guests who don't have the app or an online account? How can parental control be managed? How can the product support and enhance harmony and interactions between different users, rather than create conflict?

7. **Help users adjust to a new user experience.** Activating a device function through an app may be subject to a delay of several seconds. This latency can cause frustration and confusion unless handled gracefully by the UI. Users may also become anxious about how the product will work when the internet connection is lost. Users need to know where service settings are saved, and what happens when the internet connection is lost.

8. **Carefully consider accessibility to controls and displays.** Some aspects of control and display may best be accessed only through a website or app, perhaps because of their complexity. But we've seen users become frustrated when they have to go online or use an app to make simple changes they'd expect to make on the device itself. This is amplified when the internet connection is lost or people don't have their smartphone to hand. Mums of toddlers often report losing control of their smartphone to their child, or trying to keep it hidden and out of sight. A fine balance may need to be achieved between minimising power consumption and design clutter on one hand, and ensuring easy and accessible control on the other.



9. **Future proof to allow for changes in users' lives.** We've run longitudinal studies during which our participants have had babies, changed working patterns, moved home and even split up with partners. In some instances they've not been

able to reconfigure the product to meet their changed circumstances without the help of an engineer!

10. **Make it easy to take over ownership and control.** Some smart products, like those installed in homes, may transfer between different owners. The new owner should be able to easily and securely set up their own connecting account without relying on the previous owner to initiate the process, and how they do this needs to be readily apparent. Don't assume the packaging or user guide will still be around.



We'd be pleased to talk to you about how we can generate the user insights you need to develop, test or trial your smart, connected product or service.

To find out more about how our research can help you, contact [simon.rubens@new-experience.com](mailto:simon.rubens@new-experience.com).

*new experience* is a London-based user experience research consultancy that specialises in ethnographic research, participatory design, service trials, ergonomic evaluation and usability testing.

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