

tunein

The future of smart homes



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The smart home explosion is coming.

– Chris Patrick, Concert

Making the smart home a reality

The building sector is now fully embracing smart technology in the home, following its silent creep into the consumer market, “The smart home explosion is coming,” says Chris Patrick of Concert.

There are well over 100 million Amazon Echo (Alexa) speakers in use worldwide, with over 1bn devices able to summon up Alexa, Siri, Google Assistant or Cortana – the voice assistants from Amazon, Apple, Google and Microsoft respectively.

These in-home artificial intelligences are the flagship products of the smart home revolution, but smart home control is only one element of what they do. In fact, they are generally used for things that are entertaining but essentially trivial. Alexa’s main uses for customers, for instance, are playing music (13 of the top 100 Alexa skills relate to music and audio) and answering questions, with the most popular form of smart home application being control of lighting.

Most consumer smart home devices are not used for the more significant purposes that are of interest to those in planning, building and government – the management and conservation of energy and other resources.

However, they have already introduced consumers to a lot of the worries that must be overcome if the Smart Home is to become an everyday reality. These include issues of consumer choice, privacy, security and even utility – at present a lot of smart home technology falls into the ‘nice to have’ category. It is mildly life-enhancing rather than life changing.

We sat down with the Residential Team at Concert to discuss the future of Smart Homes and how we get there.



“What is the definition of a smart home?”

Ponders Colin Park, Sssociate at Concert. “Is it somewhere that takes the mundane tasks out of everyday life? Is it somewhere that is cheaper to live because it reduces your bills by making your home more efficient?”

Ultimately, perhaps the smart home needs to be both. A dwelling that, as Associate, Rishi Rai puts it, “Integrates modern technologies at a very high level to help the owner enjoy their home more.”

This means automation, which many people are initially uncomfortable with in the home. “People are used to using light switches,” continues Rai, “and they like to control things in their homes themselves rather than having it done for them.

However in offices, a lot of things are already controlled for us. In the car, your air conditioning may be permanently set up to warm or cool the car as required. People are open to it.”

There is of course a generation gap when it comes to the acceptance of new technologies. Although as it happens, Echo and Google Home devices are increasingly popular with older people, sometimes this is because they’ve been introduced to them by their children or grandchildren.

“The expectation of people buying a home today is so different to 10 years ago,” says Associate, Colin Park, “but are people comfortable with leaving their house and having artificial intelligence lock the doors for them? If they’re in their 20’s I’d say they probably are. Older people may not be.”



Smart homes ... know what's good for you

"I'd say the smart home has to have an element of saving money," says Chris Patrick. "Efficiencies in light and heating and water."

Although rising utility bills are already a matter of concern for many people, in most cases they don't actually affect their behaviour. A smart meter may tell you that you're using a lot of electricity right now, but that doesn't generally prompt you to run around the house turning off light switches...

"There's obligations under building regulations to design to mitigate the use of water and energy but it's ultimately down to the occupants how economic the home is" continues Chris. "Smart homes mean that you can 'nudge' people to turn light bulbs off, or at least to say unless you override it, the lights will go off if you're not in the room, for instance. Then you're creating a real benefit."

The issue then becomes that home-owners may not want to have these decisions made for them.

However, with national and global energy provision set to become much more problematic, this could change.



Chris Patrick: "Perhaps running costs are not that big a priority for most people now but that could easily change. Politically, penalty taxes on things that are bad for you – smoking, drinking – are widely accepted and more aggressive pricing of utility consumption could follow. The majority of us have bought into the idea that we need to reduce our energy usage; reduce our footprint."

With electricity in particular, smart homes could eventually facilitate not just lower bills but the maintenance of a consistent supply by mitigating energy use. Suppliers already offer different tariffs depending on time of day, to encourage users to reduce consumption during peak demand times. "You have to build these things to add resilience to the grid," says Colin Park, "there's benefit to everyone from that. In the UK we have a number of power stations that are reaching the end of their lives."

Consumers may want the smart home to be an enjoyable place but, "What they need is a home that has less environmental impact. But it's not a matter of having to choose between the two."

If you eat the greens of energy conservation, the smart home can give you a dessert of attractive mood lighting and music in every room...

Overcoming users fears

Journalists, Luddites and nay-sayers all have justifiable worries about smart homes. The need for router and cloud connectivity for practically all smart home tech raises security fears around hacking and ransom-ware. If homes are listening out for voice instructions and 'scanning' rooms for human presence, to activate or deactivate lighting and heating, this has obvious privacy implications. The home itself becomes a sort of Big Brother – albeit a benign one.

The team are optimistic, however. "If people see a tangible benefit to their smart home" – in terms of cost and/or enjoyment – "they accept the choices the smart home is making," says Chris Patrick. "There will be, no doubt, iterations of the smart home, with the traditional home being the baseline. People will get used to smart homes, and to do that they need to feel the home is working with them, and providing benefits rather than dictating."

The security and privacy fears people have are real, but everything about modern technology suggests that people will accept a loss of privacy and potential security threats, so long as they get greater convenience in return.

"Put it this way," says Chris Patrick. "I'm a lot more worried by the idea of someone draining my bank account than I am by them turning my lights off. But I still use online banking."



Fitting for the future

In the smart home, “There are certain functions that need to be there from day 1,” says Rishi Rai. A new smart home, or a redeveloped older home will need a fast internet connection and fast connectivity within the home, from router to all your smart home devices. “The old idea of a home having gas, electricity and water is now more ‘gas, electricity, water, mobile connectivity and fast broadband.”

The difference with these ‘new utilities’ is that they need to be as future-proofed as possible.

“Not so long ago we were wiring houses with Cat5 (Ethernet) cables and putting sockets all over the walls that are now barely used by occupiers,” says Chris Patrick.

Wireless connectivity today can be faster than many wired solutions. With the coming of 5G, the possibility arises of a smart home where each individual element is directly connected to the cloud wirelessly without the need for a cable to the home or, potentially, even a router.

David Nash is not entirely convinced, however. “It was said that after 5G there wouldn’t be any further generations of wireless technology but already we’re seeing people talking about 6G and 7G.”

“Is it VHS or is it Betamax?” ponders Chris Patrick.

This also goes for the ‘interface’ of the smart home. Consumers who are used to Alexa may not want Google Assistant to be the unchangeable, default choice for their smart home, for instance.

“There are certain parts of a home – the bricks or the boiler, say – where the brand isn’t important to the majority of people,” says Chris Patrick. “But with technology people have a lot of brand loyalty.”

The ideal – and entirely possible – solution is to have smart home infrastructure to which users can add their choice of technology.

We need a manual override



Over the next few generations, we will see more fully automated homes. Thermostats have traditionally been one of the most ‘fiddled with’ devices in the home, but users of smart thermostats from the likes of Hive, Nest and Tado are much more willing to leave the device to learn what they require and control the heating autonomously.

However, these do retain full manual control (via voice or app) and with good reason.

“I think there’s an element of automation that’s very good but we don’t want to restrict choice by having the home always deciding what you want,” says David Nash.

Again, the generation gap comes in. “Someone in their 50’s probably won’t be happy to have the heating set for them, at least initially.” Chris Patrick adds:

“For people’s peace of mind as well, there needs to be some way to bypass machine control, or turn it off entirely...even if that off switch isn’t ever actually used.”

Building the smart home

The arrival of technology as the '4th utility' in a home brings with it numerous challenges. While the ideal may be a self-regulating unit that generates its own power, recycles its water and orders your shopping for you, clearly this can't happen overnight.

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People are starting to have nagging worries about cyber warfare and hacking, just as planners (and tech brands) are trying to introduce smart home technologies based on connected technologies.

"It is an interesting time," says Colin Park, "you hear more about hacking than bank robbing at the moment. The physical world is changing as we embrace technology."

Chris Patrick is sure that the need to reduce energy use will drive the adoption of the smart home. "We need to reduce these big spikes in energy use and water use. Integrated homes can help us do that. If your home can monitor your behaviour and optimise itself, without you having to modify your behaviour, that can only be a good thing."

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