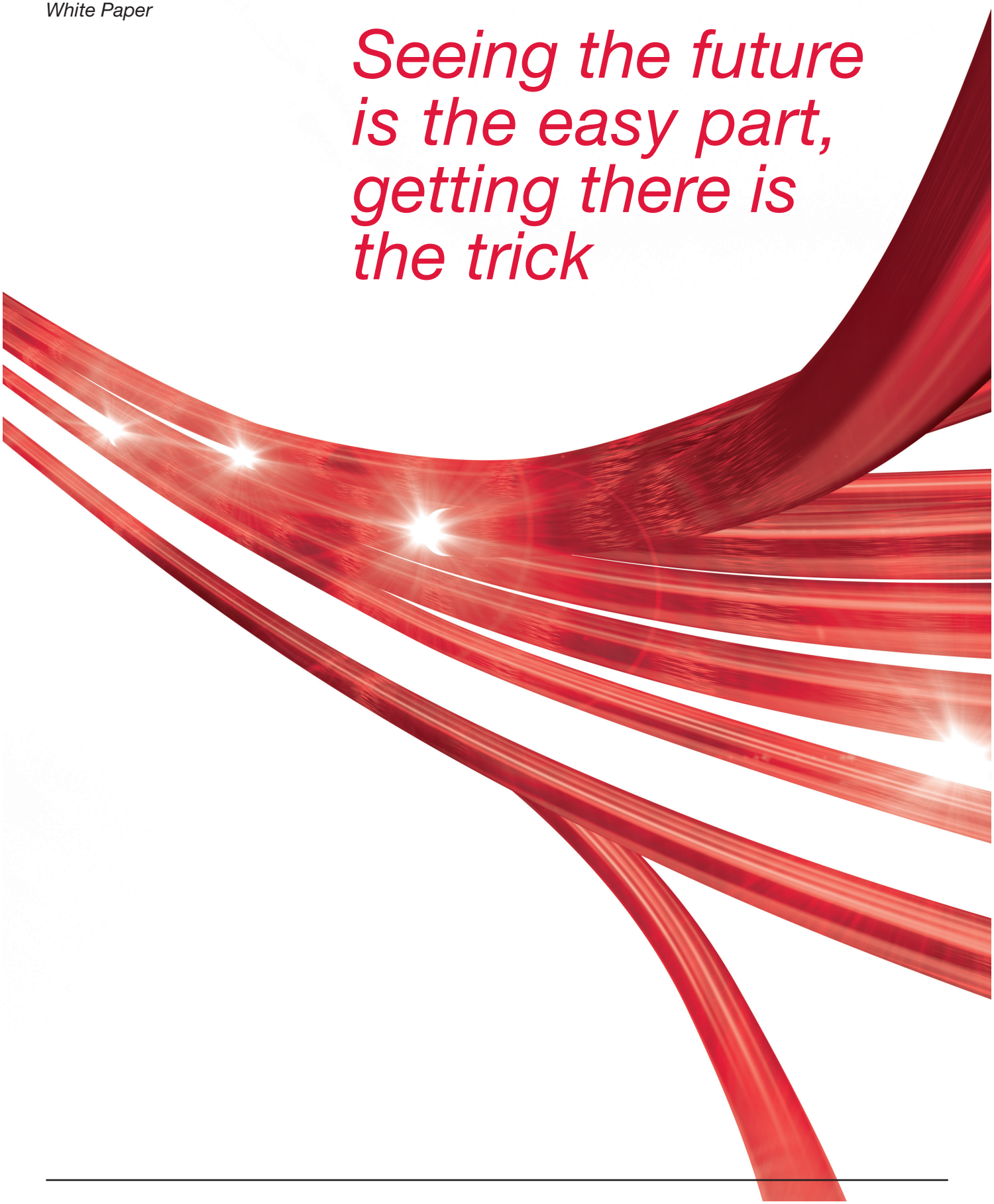
Virgin media business

White Paper

Seeing the future is the easy part, getting there is the trick



The future will need ubiquitous connectivity. Applications, colleagues, entire buildings and even cities will literally be at the tip of our fingers. Every aspect of our lives will be impacted by a meshing of nature and digital. Organs will tell us when to take a break. Digital avatars will take our place when we find ourselves involved in multiple conversations. Interacting with people across the globe will be as natural as shaking hands.

There's no end to what could be accomplished, so we've tried to be realistic and set our sights on the near future, 2025 in fact. It sounds like a far off date ripped from the pages of a comic book, but actually, it's just over a decade away.

If you look at what's already taking place today, we're already seeing a huge surge in the amount of data businesses and people create and consume through a vast range of technologies. But the amount of data stored by 2025 is expected to explode to a staggering 100 zettabytes. That's the equivalent of 36 billion years of HD video or approximately eight times the age of the Earth.

Generation IP: 2025, is the result of research carried out by The Future Laboratory. It includes opinions from a range of experts in their fields, including the Massachusetts Institute of Technology (MIT), Imperial College London, and the University of Washington amongst others. It provides an exciting glimpse into a hyper-connected Britain that's rooted in what is already taking place.

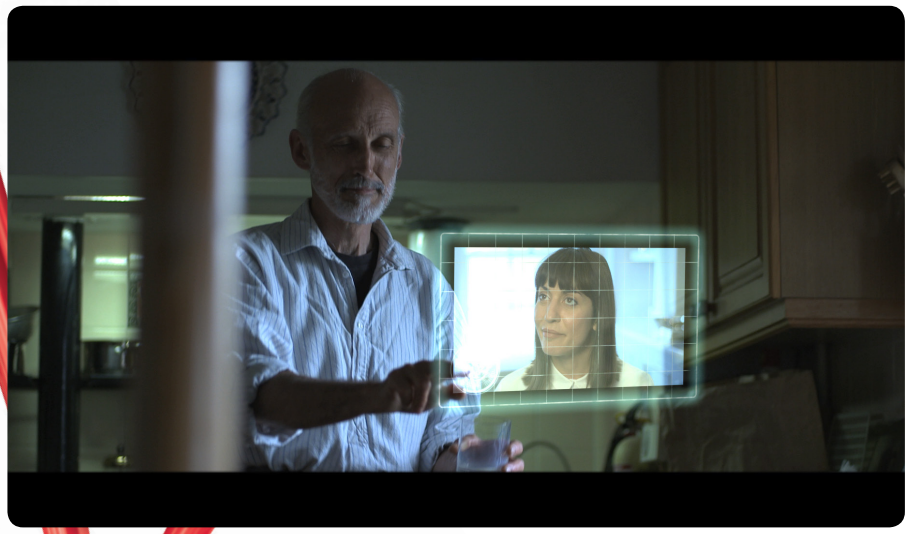
To explore some of the themes raised by the research, we invited a group of futurists, technologists and business leaders to The Future Laboratory's offices in Shoreditch, London for a roundtable discussion.

The conversation looked at how the concept of ownership may become redundant due to the digitisation of media, content, and our work lives. It also looked at the role governments and private industries can play in making it a reality. Underpinning all of this was what it all means for us as individuals and the relationships we have with other people, friends, family, and colleagues. It also looked objects, that in time, we'll become more reliant on, and in some places, need to trust with our very own personality. Key to this discussion was how this future could empower us and not control us; enabling us to lead lives more balanced and to ultimately give us the freedom to easily use the 'off switch.'

Connected cities – the building block of the future

We've already seen the early plans for connected cities announced. Super-connected cities were first announced last year in Chancellor George Osborne's autumn statement, when he pledged £100m in 10 urban areas to ensure our leading cities would have the wired and wireless digital infrastructures they need to face the future. These areas have now been identified and will be split across Britain.

Connected cities are exactly what they say on the tin - cities where ubiquitous connectivity exists for the betterment of all. Be that the citizen, business, government agency or community. It's a godsend for groups such as town planners as they'll be able to study a whole host of factors. Councils too, charged with the delivery of the 'digital by default' agenda, will have considerably easier access to superfast connectivity. It'll help all their communities, harder to reach spots included, with the access that'll put an end to digital exclusion. Effectively, all of us will have better connectivity, allowing us to stay in touch, no matter where we go. Wi-Fi on the Underground is just one example of our cities becoming more connected, whilst small cell technology offers an alternative to delivering high capacity to mobile networks and connectivity across city spaces.



These projects are set to be the bedrock of what could be achieved by 2025. Private companies are lining up to create these connected landscapes. However, as Joe Dignan at Ovum pointed out, the public sector doesn't always have the same enthusiasm as the private sector. Likening it to a face-to-face negotiation, the problem at the moment is that it seems there's only one party sitting down at the table.

Yes, the government is putting up some money to fund these connected cities, but nowhere near to the extent the private sector is pushing for it. One notable exception is in the area of mobile broadband where a number of cities are running or exploring procurements to encourage the deployment of next generation solutions for wireless connectivity.

Me, myself, iRobot

If we accept that technology will play a bigger role in our lives, then it raises a further question about whether that's a good thing. As Peter Cochrane, OBE, pointed out, the move towards a form of artificial intelligence (AI) is already taking place. In America, patients are using software called ANN (artificial neural network) which uses the combined knowledge of its network connections to help lower patient risk and provide advice based on cumulative evidence to form a decision. On the flip side, UK patient complaints against doctors have risen 23 per cent in the last twelve months.[i] As Peter highlighted, the human brain can only do so much at any one time. It can only absorb a certain amount of information in any one go. With more data than ever set to be on offer, we're going to need help.

However, when we talk about AI, people tend to think of a post-apocalyptic world where man and machine are at odds. Hollywood at its finest. What if instead of opposing each other, nature and AI worked in harmony. A system which saw AI technology create digital avatars or virtual personas based on our personal data. Luke Robert Mason, director at Virtualfutures, believes we will have so many connections and outlets for communicating that "AI assistance will be essential."

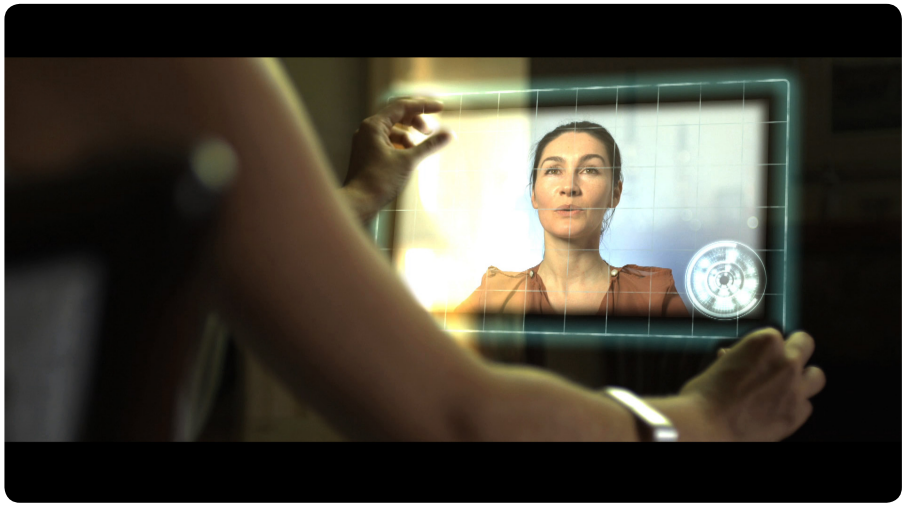
[i]GMC http://www.privatehealth.co.uk/news/september-2012/patients-have-higher-health-expectations-37606/

Yet this raises huge questions. Who do you decide to deal with directly and who do you use your digital proxy to interact with? If it's a busy day at work, would the other half be happy to deal with a virtual version of the person they love? And what then would happen when two proxies start dealing with each other? As we're finding out with online music libraries at the moment, if we buy items online, who owns them when we die? Plus when we do eventually die, what happens to our proxies? Is there a big switch that just turns them off?

These are questions that no-one has the answers to, but these questions are beginning to be asked. The integration of technology is radically going to change our society and different social models are going to be created. Anne Lise Kjaer, a leading global futurist, believes a new model in the form of the four Ps will rise in prominence. This model will rank People, Planet, Pleasure and Profit in that order. Governments and businesses will need to create an environment where people are liberated by the access to data. This'll help to protect the environment we live in, leading to a better lifestyle, which in turn will make us all more productive. It's a far cry from the dystopian future that springs to mind when we think of AI, and that in itself is a hurdle. People are already worried about the use of their data, the intrusion of work into our personal lives, and the role government plays in controlling our societies. With these new models, we may need to be more transparent, but in doing so, we'll actually create a better, more enjoyable way of working.

Humanised technology

The overriding concern about technology, underpinned by ubiquitous connectivity, is the intrusive nature it might have. A phone rings. An email is red flagged. These are not natural interactions. They're alerts, buzzes, attention-grabbing mechanics. Imagine being surrounded by such intrusions on a near constant basis. And if we are to deal with more digital avatars, then how can we replicate the sensation of meeting someone in the flesh. Can technology become as natural and intuitive as a handshake? Will a certain smell bring to your attention a text message or an email? Will a nerve in the brain automatically be stimulated?



For all-encompassing technology to take hold, as we think it will, this needs to be overcome. Robert Luke Mason mentioned technology is already being developed that plays on this aspect to a certain extent. In America a special band that is attached to a pregnant woman is constantly connected to the internet. As soon as the baby moves or kicks the mother, the band will send a tweet on behalf of the unborn child. Before they are even born, people are seamlessly interacting with technology. If we are already tweeting before we are born, then what other ways will we find to intuitively use technology to connect with others?

I am not a number

The debate in this country around ID cards has lasted for decades. Traditionally people simply don't like to give away too much information about themselves. This has changed with social networking sites, but data privacy stories still grab the

headlines. We're cautious about giving too much of ourselves away. Whether it's a suspicion around what the government will do with it, or how companies will use it to sell more products, we're conditioned to be sceptical.

Governments, organisations, groups of people need to start preparing people for a world where data is available at the click of their fingers or the blink of an eye. They need to be utterly transparent and show people the benefits of sharing. It will create huge medical benefits, businesses will be able to crowd source new ideas, and people will be allowed to be as creative and collaborative as they want to be.

Connecting it all together

It's exciting. Really exciting. But change inevitably leads to hesitation. All of us need to pull together to make our vision of 2025 become a reality. With the combined minds of some of the leading futurologists in the world, we have come up with five stages that need to be passed to make the vision of 2025 the future we've predicted – a world where we collaborate with thousands across the world, work the hours we want to, and where going to the doctor is as simple as making breakfast

1. **Connected cities and laying the foundations –** these 'intelligent' communities need to take off if we are to create technology enabled lives. To do that, the infrastructure needs to be there and funding needs to be secured. Both the government and the private sector need to sit down at the table and thrash out roles and responsibilities. Fibre already spans the UK and small cell technology is on the cusp of connecting cities, but this is just one example. Further innovation like this, exploring 5G, advanced LTE technology, it'll all help to lay this important foundation

2. **AI isn't our enemy** – The government and organisations developing this technology need to convince people AI isn't an impending problem. They need to help explain it'll be like any other tool, such as a phone or computer, in order for it to be accepted. As with the acceptance of social networking, younger generations need to brought on board to act as advocates this, and in time every citizen will be brought on board to ensure no one is left behind

3. **All parties involved need to be honest** – transparency, open source information, making the facts available. These are all tactics governments, think tanks, enterprises and organisations of all shapes and sizes will need to adopt to ensure people feel comfortable embracing a new digital lifestyle, and fundamentally changing the way they go about their lives

4. **Organic technology** – manufacturers need to create products that feel as natural as taking a breath. For us to be surrounded and connected to technology on a constant basis, it needs to become as simple as a blink of the eye - less mechanical and more intuitive working in tandem with people

5. **All in good time** – change is always a worry. That's why all parties pushing in this direction need to be mindful not to go too quickly, too soon. The government and industry need to prepare today's generation and the generation of 2025, ensuring we have the right skills to manage this changing environment. Putting technology at the heart of everything we do will be the key. We must feel empowered by this change and feel like we're in control at all times