Engineering the future of communications - 2016

“Adapting to a Connected World”
The IET

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The IET Communications Policy Panel

The IET Communications Policy Panel is tasked by the Institution of Engineering and Technology with proactively identifying policy issues applicable to the communications sector and providing guidance to the IET Board of Trustees, members, Government and the public. It’s members are Chief Technologists and their equivalents from across industry, academia and public sector organisations.

The panel conducts most of its business electronically but meets with selected guests a few times a year at the IET in Savoy Place to review key topics. Some of these discussions form the basis for the annual meeting.

For more information please visit [http://www.theiet.org/policy/panels/](http://www.theiet.org/policy/panels/)
Adapting to a connected world

Welcome to the eighth meeting in a series of successful annual briefings to discuss policy matters involving communications and the information economy.

The purpose of this event is to bring you up to date with the thinking of top engineers about likely future developments in communications and to give you the opportunity to participate in a discussion of the likely consequences.

Communications technology is continuously evolving and developing, and we are quickly becoming increasingly connected not just to each other but also to our homes and environment. This presents us with potentially great benefits, but also the challenge of keeping up with it. We intend to review two ways that we are beginning to adapt to this connected world.

Firstly, we plan to consider how Smart homes and the Internet of Things continue to transform people’s lives. We will look at how Smart homes may soon be able to manage our homes and our lives, as well as the role that connectivity and the internet will play in this.

Secondly, we will examine the unprecedented speed with which surveillance technologies are permeating society, and consider the influence of these pervasive communication and monitoring technologies, not just on our private lives but also on our work lives and practices.

This event is being held by the IET Communications Policy Panel which provides guidance to policy-makers and Government. The Panel draws on the experience of some of the most knowledgeable and respected engineers in the field of communications from industry, academia and the public sector.

Lord Broers Kt FRS FREng
Chairman’s introduction

Communications and IT technology is all-pervasive and is starting to affect our lives and our interactions (including political ones) in profound ways. Most of the effects are beneficial, enabling us to keep connected to each other and to be supported in ways previously possible only for a privileged few with teams of chauffeurs and servants, but it is also changing our social order in profound ways. And the changes we have seen so far are small compared with what is just around the corner.

We are all under scrutiny far more than we were, from dash cams and cycle cams to self-driving (& connected) cars and smart homes - this is very helpful in providing what we want when we want it, but also has major implications for all of us. It also has major implications for public policy and those managing it. If our smartphones have problems or just fail to connect we are much more affected than if a mere telephone line failed.

We have today two brief introductions on key areas to start the discussion from Communications Policy Panel members - on smart homes and how we manage them (or they manage us) from Mike Short CBE of Telefonica and on the effect on democracy of a Connected World from Simon Dore, of Mediapaedia Ltd, but we are looking for a wide-ranging discussion!

Prof Will Stewart FREng CEng MIET FlnstP
It is expected that by 2050 that 75% of the population in the UK will live in cities, and that future cities will have to be smart, wirelessly connecting people and devices. This will put pressure on transport, security and of course the design of future homes. Within the sharing economy we may need to get used to families living longer and perhaps together, but it is vital that we think about this from a human perspective - what are our homes for and how may we make them more sustainable?

Smarter homes will be expected to help us play, eat, work and stay healthy. The management of our homes will change with more home deliveries and home working, but peace of mind, usability and cost controls will all play their part. Remote control of appliances; maintenance alerts; social care; home security; energy management. The need for everyone to have their own parking space let alone a garage may well be challenged, and perhaps the move to other shared facilities may be encouraged. The Uber homes of tomorrow are within reach.

In the same way as we see “Internet on wheels” for the car, the internet may become the primary new home communications mechanism for home based devices and appliances. The web as a source of information and Apps stores for Apps. This may offer challenges to formats and indeed privacy, but for the Facebook generation why not, as physical space and storage will be at a premium? Many already have their record or photo libraries in the cloud for appropriate sharing - so why not health and education records?

We may all dream of an electronic butler but robotics and AI are more likely to deliver functionality first. We need to have confidence and trust in these solutions - privacy, standards, skills, certification, trusted brands, case studies, ease of use, and security…..the heartlands of the IET, but let’s see what we can really do for the smart homes and smart cities of the future!
The British Security Association estimated in May of this year that of the approximately 5 million professional CCTV cameras in the UK that only 1 in 70, that’s 71,000, are owned and operated by government whilst it is a fact that 95% of Scotland Yard’s murder cases were backed by CCTV evidence as early as 2009.

The uptake of the wearable camera has been accelerating with estimates in 2015 of a 14% UK penetration by the end of this year.

There is no question that through standard fixed surveillance and the increase in the use of IP camera technology, we are fast approaching a point at which we must assume that our actions are being recorded most of the time.

And with the improvements in mobile connectivity we demand and which will come through the proliferation of better public WiFi and the implementation of technologies such as 5G, these images will increasingly be streamed live into the networks where they will be available for all to see.

Our behaviour when made aware of this level of scrutiny undoubtedly changes. A recent study by the University of Cambridge found a 93 per cent decrease in complaints made against police officers with visible cameras, compared to the previous year.

Assumptions are that these devices improve the officer’s compliance with procedures as well as the suspects’ demeanour.

Developments in lower cost, higher quality cameras, IP voice links and faster, less congested networks also offer a robust opportunity to devolve industrial workstreams outside of the head-office, into third-party satellite locations and the
homes of the workforce. This, in itself, leads to a cultural change which like so many, has its distinct advantages and disadvantages.

Companies such as Oblong, Cisco and Polycom have allowed publicly acknowledged success stories such as: the Nationwide, Dell, SAP and JetBlue to encourage homeworking and to take advantage of the contribution made by those for whom travel may not be an option.

Although there is no real consensus on the benefits (Marissa Mayer banned all remote working at Yahoo! on the grounds that it destroys the ability to discover information organically from the canteen, corridor and washroom discussions) there is again no doubt that it is here to stay.

But what do these advances mean for us in cultural, human and democratic terms?