Mind the Communications Gap!

‘Creating the digitally connected roadmap for our industrial strategy’
The IET

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- The IET is working to engineer a better world by inspiring, informing and influencing our members, engineers and technicians, and all those who are touched by, or touch, the work of engineers.

- We want to build the profile of engineering and change outdated perceptions about engineering in order to tackle the skills gap. This includes encouraging more women to become engineers and growing the number of engineering apprentices.

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The IET Communications Policy Panel

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Our Communications Policy Panel proactively identifies policy issues and provides 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.

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

This is the ninth 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 about the likely consequences.

This year we will be focusing on the role of 5G in the Industrial Strategy and how the 5G role out needs to be considered as part of a wider holistic communications plan to bring about the biggest improvements in quality of life. Having identified some of the main challenges that the communications industry is likely to face while bringing about a digital UK, we will be then be discussing the role of policy in ensuring the UK gets all it can from these technological advances.

This event is being held by the IET Communications Policy Panel, which provides guidance to Policymakers 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

By almost any measure the UK leads the world in the impact of the e-economy. This includes the fraction of GDP, usage by individuals and more. We also lead the world in some of the key technologies involved, from games to smartphone processors. This insufficiently recognised advantage and the big productivity gains it can enable depends upon a communications infrastructure that needs to be both increasingly capable and increasingly available everywhere. The consumer access device of choice is increasingly the smartphone (or tablet) but the mode of access, the locations for access and the range of monitoring devices to be accessed are becoming ever more diverse.

These rapidly-changing technologies are revolutionising our lives and the way we work - in mostly very positive ways in spite of some fearful media coverage! We are ever-more-aware of the world around us, and ever-more-able to discuss it, wherever we are. This is already helping our productivity but to maintain and improve our position in an increasingly globalised world we need to work at keeping our infrastructure sufficiently dynamic, holistic and pervasive.

We will review and discuss some of the key issue involved and what needs to be done to maximise their benefits.

Prof Will Stewart FREng CEng MIET FInstP
The Internet of Things (IoT) promises much.

- Agriculture could become more efficient through monitoring livestock and crops.
- Healthcare could both be more proactive and less expensive through monitoring of those at risk in their homes.
- Cities could function more efficiently with intelligent lighting, parking, waste collection and more.
- Manufacturing could be more highly automated and products better functioning.

Yet despite this promise, little has been achieved.

One clear reason for this is a lack of agreed standards for connectivity. Without this, economies of scale are not realised in devices and widespread network coverage is not deployed. Industry lacks effective levers to achieve consolidation across many competing solutions but Governments may be able to achieve more. A very substantial fraction of IoT devices - perhaps as much as 50% - is likely to be procured by Governments, public sector bodies or related entities.

Using smart procurement tactics to place a consolidated order for harmonised provision of IoT connectivity using globally harmonised standards could act as a catalyst, both delivering benefits to Government through greater efficiency and to industry by removing investment uncertainty, opening the door to a wave of UK innovation in areas such as AI-driven data analytics.
The one critical 5G parameter that global mobile standards bodies do not define is “coverage”. The definition on that parameter is for national determination. There has yet to be a meaningful policy debate on the ambition the UK should set for 5G coverage. It is important the debate takes place since 5G cannot benefit what it does not cover. It would be ideal to see Gb/s broadband connectivity everywhere but the laws of physics and economics make this ideal impossible.

What is within the bounds of possibility are:

- Connectivity “almost” everywhere at 700 MHz but only with data speeds in the 10’s of Mb/s. This can offer a near universal “control plane” of our connected 5G world
- It should be possible to deliver 1-2 Gb/s mobile coverage across all UK cities and towns at 3.6 GHz given the right policy and regulatory support. This can deliver an urban Gb/s society.

Both of these are important and can make a transformative impact. But neither will happen without the government articulating ambitious goals and Ofcom coming up with regulatory innovations to significantly slash the cost of coverage for mobile operators to make those goals deliverable.
Indoor

Dr David Cleevely CBE FREng FIET

If you’ve ever found poor mobile coverage in your home or office you are not alone: 70% of businesses report problems, for millions of homes coverage can depend where in your house or flat you find yourself.

There’s one answer: more spectrum, more phone masts, more infrastructure. It’s a race because customers want higher data rates and better connectivity at the same time that homes and offices are being built which are more energy efficient, and things like heat reflecting glass also blocks mobile phone signals.

But there’s another answer. Just like WiFi, provide the coverage from the inside - or even from the lamppost just outside. It’s technically easy, but we have rules and regulations which make it nigh on impossible to implement. Unlike WiFi, mobile spectrum is owned and paid for. If we licensed low power (non-interfering use) for free, like WiFi, that would unleash a wave of innovation. If we made sure lampposts could be used for new uses without planning objections and rent-seeking pricing that would do the same.