

Regulation, innovation and global infrastructures

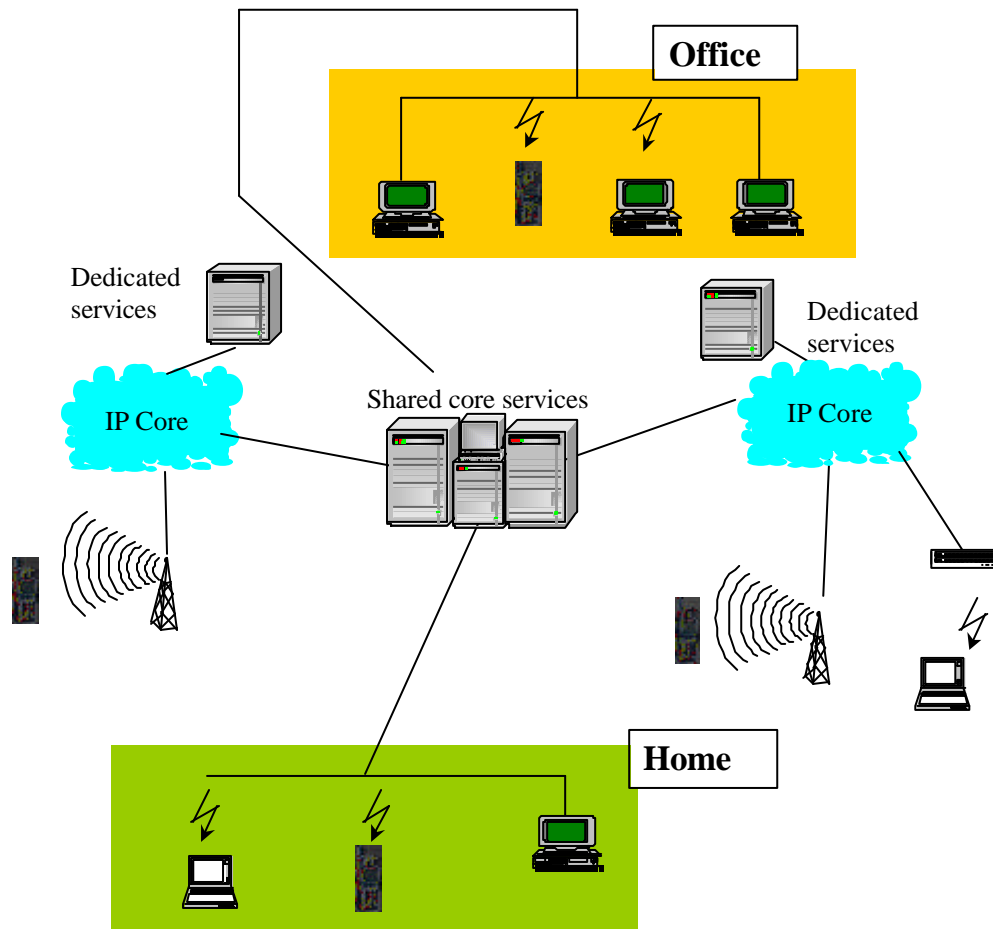
Professor William Webb
April 2005

Regulation, innovation and global infrastructures

- **The present**
 - Defining the key elements of global infrastructures
 - Why regulate?
 - Market forces – the new regulatory paradigm
- **The future**
 - Predictions
 - Innovation and investment
 - Striking the right regulatory balance

Key elements of a global communications infrastructure

- Infrastructures are increasingly interconnected, either at the network or terminal level
- Calls may travel via multiple different networks
- Each element may need separate regulation, investment and consideration but all are needed to work together



Why regulate - wired

- Regulation of monopoly supply is needed to protect consumers
- Broadly the aim of our regulation is to reduce the areas of monopoly supply through the encouragement of competition
 - Where possible through the deployment of parallel networks
 - Where not possible through network access such as local loop unbundling

Why regulate - wireless?

The Given: **Fulfil our statutory duties**

Ensure optimal use of the spectrum

Take account of the needs of all spectrum users

Maximise economic benefits of the spectrum

The Ambition: **Make the UK the leading country for wireless investment & innovation**

A better signposted approach to spectrum, giving more certainty in the market

A flexible approach to spectrum, providing opportunity for innovation

A competitive communications market, providing opportunity for returns on investment

There are three possible ways to manage spectrum

Command & Control Zone

Ofcom manages it

Approach that is currently adopted for about 94% of the spectrum

Market Forces Zone

Companies manage it

Approach advocated by Cave and implemented by trading and liberalisation

Licence-exempt Zone

Nobody manages it

Approach currently adopted for 6% of spectrum, some argue for radical increase

- We need to decide the right balance between the Zones
- Zones are currently demarcated by **frequency**. However, there are also dimensions of **power** and **time**

The Command and Control Zone

The status quo

- The regulator decides on how much spectrum is needed for each application and who gets it.
- No variations are allowed
- The approach followed for the last 100 years

But no longer the preferred option

- The regulator cannot know as much as the market and so cannot make decisions as well as the market
- The Cave Report strongly recommended moving away from this model

Still needed in some areas

- Spectrum controlled internationally, eg HF, satellite
- Spectrum where international roaming is essential, eg maritime, aeronautical
- Uses we wish to preserve, eg radio astronomy

Today



94%



21%



2010

The Market Forces Zone

Allocation

(what the best use is for the spectrum)



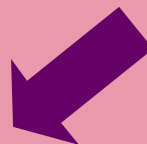
Liberalisation Phase 1:
Users ask Ofcom if they can change the use



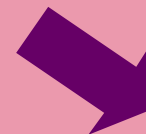
Liberalisation Phase 2:
Technology-neutral spectrum usage rights to allow users to make the change without consulting Ofcom

Assignment

(who the best user is of the spectrum)



"New" spectrum:
Auctions



Existing spectrum:
Trading between users

Today



0%



72%



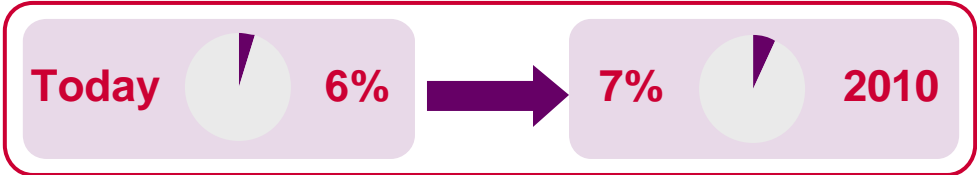
2010

The Licence-exempt Zone

Key area for innovation but we do not need much more

Focus on removing restrictions, eg higher power in rural areas

Increasing licence-exempt allocation to 7% of total spectrum allows enough for everyone to install equipment capable of delivering 100Mbits/s data services in homes or offices



The Ofcom Spectrum Vision

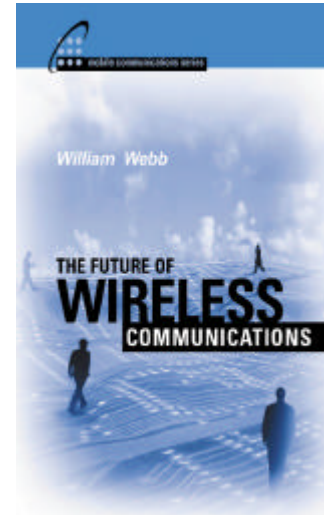
- **Spectrum should be free of technology, policy and usage constraints as far as possible**
- **It should be simple and transparent for licence holders to change the ownership and use of spectrum**
- **Rights of spectrum users should be clearly defined and users should feel comfortable that they will not be changed without good cause**

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Visions of the wireless utopia generally exhibit similar characteristics

- A single device that works in the office, home and wider area
- Lots of video calling
- Intelligent homes:- security systems, heating, maintenance
- Individualised services:- news broadcasts, sports, entertainment
- Enhanced navigation:- in car, at the airport, at the hotel
- Much better human interfaces:- speech recognition, big screens on small devices
- Mobile wallets
- Large file download whenever and wherever

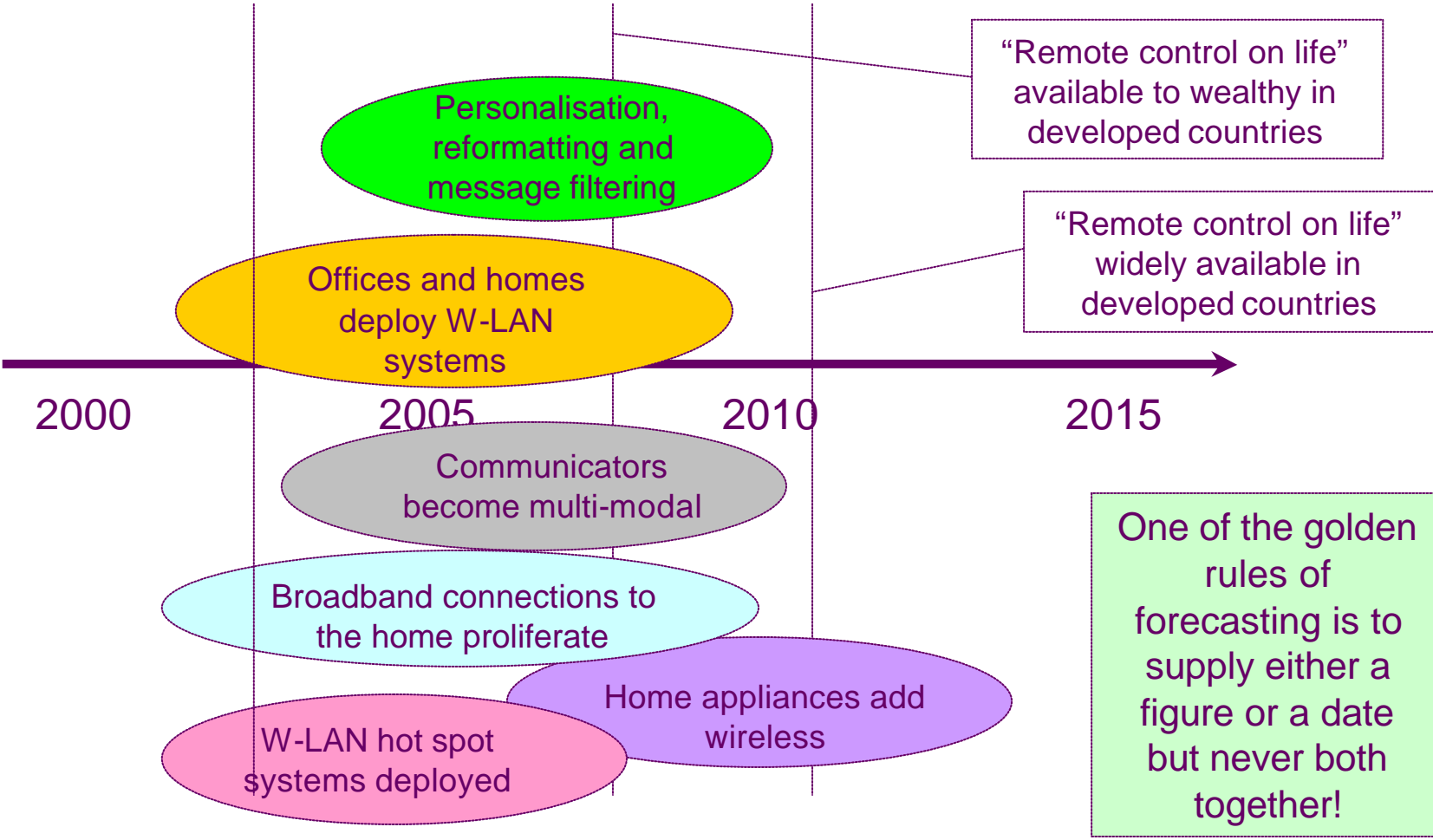


I've landed at the airport. My communicator works out that I'm going to be early for my meeting if I take a taxi straight away. It tells me about the coffee shops within easy walking distance and provides a simple map. It even orders and pays for the coffee as I get close.

The technology to do most of these exists today – it's an issue of cost, standards and acceptance

- What can already be done
 - Video calling using 3G technology
 - Individualised services such as news broadcasts, sports and entertainment from eg Vodafone Live or 3
 - Navigation, but with poor accuracy until GPS in the handset becomes increasingly widespread
- What's on the way, or nearly here
 - Intelligent homes can be implemented but are generally too costly to justify the benefits – as W-LANs become more widespread this might change
 - Mobile wallets only require widespread standards for m-payment
 - Large file download is becoming more practical as W-LAN hotspots proliferate
- What's still futuristic
 - A single device that works in the office, home and wider area
 - Better human interfaces – plenty of work in R&D but no major breakthroughs yet

Services will gradually evolve, becoming fully available between 2008 and 2012



There appear to be two ways that Ofcom could have an influence in enabling such a future vision

- Through policy development that is favourable to innovation, eg
 - Auctions that favour in some manner innovative ideas
 - Regulation of telecoms that allows due recompense for investment linked to innovation
 - Or perhaps by removing regulation to prevent inhibiting new ideas
- Through using our R&D funds to stimulate new ideas
 - Funds total ~ £8m but have to meet internal needs have some restrictions on usage and must be pre-competitive
 - Can fund the development after academia has come up with ideas but before the VC community is willing to invest
 - Clearly need to align with other similar organisations

Striking the right regulatory balance

Protection

Vs

Innovation

Encourage investment

Vs

Competition

Harmonisation

Vs

Market forces

What is the right regulatory balance?

Is the bias towards market forces correct?

Will things change in the future?