Parliamentary Office of Science and Technology

postnote

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E IS FOR EVERYTHING?

Public policy and converging digital communications

The world of communications is changing rapidly. More than seven out of ten UK adults have mobile phones, over a third of households have home internet access and a similar proportion have digital television. These technologies are also beginning to 'converge', so users can receive similar services on a variety of devices.

Setting policy in such a complex and evolving environment is difficult. Early in 2002, the Government plans to publish a draft Communications Bill. This would create a single communications regulator, OFCOM, merging current broadcasting and telecommunications regulators. This note is a summary of a longer report[1] looking at the development of digital communications in the UK, considering the main policy issues and examining the implications of convergence for communications regulation.

Background

As faster internet connections become available to home users, it will increasingly become possible to view film clips and television programmes, listen to the radio and to play games over the internet on a home computer. In parallel, interactive services such as games and betting are becoming available through digital TV, while new technology is enabling such services to be delivered via mobile phones. These trends are examples of 'convergence' - the ability of different electronic devices to carry similar services - so music can be played on a mobile phone, or web pages viewed on the TV. This does not imply that all communications will merge into a single medium or device. Rather, different delivery mechanisms and content may be complementary. So, for example, a football fan could get scores sent to their mobile phone, use the world wide web to view team information and highlights clips, and watch the full match on digital TV.

The full report considers three aspects of convergence:

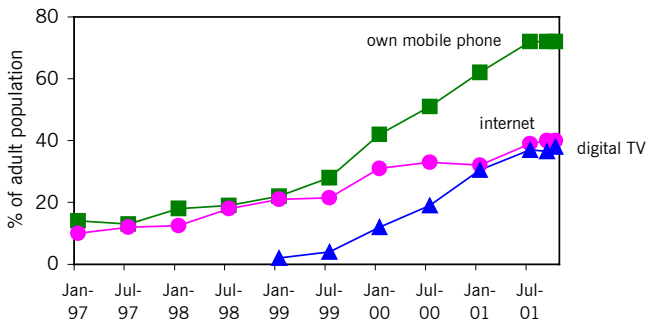
- **devices** such as mobile phones, digital TV sets and set-top boxes, on which users view information and communicate with each other.
- the means by which information and communications are **delivered** to users - for example, down telephone lines, via satellite or through wireless methods such as mobile phone networks.
- the **content** and services which users might access, including interactive digital TV, gambling, business applications, services based on a user's location and e-Government.

Take-up of communications services

UK take-up

The graph below summarises the increasing take-up of the three main new communications technologies - internet access, digital TV and mobile phones. Between July and October 2001, this increase appeared to level off for each technology, although it is too early to say whether this is a long-term trend.

Take-up of communications services in the UK



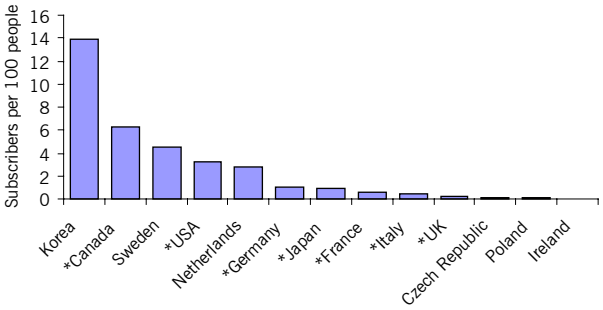
Source: e-Mori Technology Tracker, October 2001

http://www.mori.com/emori/tracker.shtml

International comparison

The UK has the highest rate of digital TV access in the world (38%), and was the first country to start digital terrestrial TV transmission (received through a TV aerial), in November 1998. Levels of internet access (39%) and mobile phone penetration (73%) in the UK are comparable to the EU average. However, the UK is lower down the league table of high speed 'broadband' internet access. Despite the Government's target to have "*the most extensive and competitive broadband market in the G7 by 2005*", OECD figures from June 2001 (see graph below) show the UK 7th in the G7 for broadband take-up[2].

International broadband internet take-up, June 2001



*Source: The Development of Broadband Access in OECD Countries, OECD October 2001. G7 nations marked with **

Government policy

The Communications White Paper

In December 2000, the Government published a White Paper[3] about regulation of communications in the new environment. It proposed the introduction of a single communications regulator, OFCOM, to replace five current regulators:

- **Oftel**, which regulates telecommunications services;
- **Independent Television Commission**, which licenses and regulates commercially funded television services;
- **Broadcasting Standards Commission**, which regulates standards and fairness in broadcasting;
- **Radiocommunications Agency**, which has responsibility for managing the radio spectrum;
- **Radio Authority**, which licenses and regulates all commercial radio services.

The White Paper also considered OFCOM's role in competition regulation and included proposals on regulating broadcast and internet content, media ownership and ensuring universal access to services.

The Government has introduced a paving bill (The Office of Communications Bill, 2001) to allow preparatory work towards OFCOM, such as setting up a Board for the new regulator. However, OFCOM would not begin regulating until the full Communications Bill became law - by 2003 on the Government's proposed timetable. A draft of the full Bill is planned for this Parliamentary session.

Digital communications

There are three overarching objectives to Government policy on the internet and digital communications:

- to make the UK the best and safest environment in the world for e-commerce by 2002.
- to ensure that everyone who wants it has access to the internet by 2005.
- to make all Government services available electronically by 2005.

In the second *UK Online Annual Report*[4], the Government detailed recommendations in 26 areas, including topics such as: improving internet access at home and in the community, including a network of 6,000 UK online computer-access centres; investment in computer skills, both in schools and through lifelong learning; encouraging the development of broadband internet access; and promoting the uptake of digital TV.

The EU is also reviewing communications legislation and published a package of draft directives in July 2000. These cover all communications infrastructure, including telephones, internet, TV etc, but do not cover services carried over the infrastructure such as broadcasting or internet content. If adopted by the European Parliament, the earliest possible deadline for transposition into UK law would be March 2003.

Issues

Predicting the future?

It is by no means certain how, at what speed, or to what extent convergence may occur - and the details are likely to differ from those set out here. Predicting which technologies will meet consumer demand, and how, is dependent on a complex interaction of innovation, the market, policy and individual choice. Some convergence indicators, such as access to digital television, are happening faster than predicted. Others, such as take-up of domestic broadband internet connection, have been less immediately successful in the UK. The full report discusses some of the ways in which convergence may develop, looking at scenario planning exercises that aim to understand and prepare for the main drivers of change. However, despite these uncertainties, it is possible to identify a number of key policy issues, some of which are considered below.

Regulating content

Convergence poses challenges for traditional content regulatory structures. For instance, providers need a licence to broadcast TV services, but no such licence is needed to publish internet content[5]. If convergence leads to TV programmes being widely available via broadband internet, then new approaches to regulating TV content may be needed. Similarly, convergence may affect regulatory approaches to mobile phone communication. This has traditionally been person-to-person and so, like other voice telephony, content is essentially unregulated. But the next generation of mobile phones will be able to download internet content at higher speeds, so wider content regulation issues become applicable.

The Communications White Paper makes a distinction between broadcast and internet content. It proposes a three-tier structure for regulating broadcast content, with internet content outside this structure (in 'tier zero'). Here, internet content would be subject to general law and self-regulation by industry. The full report examines

whether content should be regulated, how this can be achieved, and the implications of convergence. It also considers other issues related to content, such as:

- **Intellectual property rights**. Digital content can be copied and distributed widely without the need for specialist equipment. The recently approved EU Copyright Directive allows for 'technological measures', such as encryption, to prevent unauthorised copying, and makes it illegal to circumvent these measures. Similar laws in the US have proved controversial.
- **Using the TV as a monitor for viewing internet content.** Some digital TV operators provide full internet access through set-top boxes, using the phone line to send and receive data. However, other digital TV providers do not allow access to the whole web, but offer a limited subset of interactive content which is approved by the service providers – known as a 'walled garden'. The full report outlines the pros and cons of walled gardens for digital TV, internet and mobile phone content.

Access

Some groups (such as those on low incomes, elderly people and those living in rural areas) are less likely than others to have access to communications services. The full report examines this 'digital divide', considering universal access to digital communications and focussing on two key areas: access to broadband internet connections and Government plans to switch-off analogue TV services.

Universal access

Of the three main communications technologies considered in the full report (mobile phones, digital TV and the internet), internet access in particular demonstrates a digital divide:

- households headed by a professional are three times more likely to have home internet access than those headed by an unskilled worker[6].
- only 11% of those 65 or over have ever accessed the internet (compared with 88% of 16 to 24 year olds)[7].

Although some of those without access to new communications media are undoubtedly discouraged by cost, many say they will never want such access. This can be for a variety of reasons, including perceived irrelevance and concern over technical skills. However, although there are likely to be some who will never go online, particularly in older age groups, people's attitudes can change dramatically as new technology becomes widely used; their peers become aware of the benefits; access becomes more user friendly; and costs fall.

BT[8] is subject to a 'universal service obligation'. This aims to ensure that that people on low incomes and in rural areas have access to telephone services, which are considered to be essential for social and economic inclusion. Oftel's August 2001 review of the obligation considered whether it should be extended to mobile phones, internet and broadband services. It decided against an extension, but the Government is keeping under review the case for universal broadband services.

Broadband access

At present, most UK home internet and small-business users have a 'narrowband' internet connection, via a modem and standard telephone line. With higher bandwidth 'broadband' internet access, faster data transmission speeds could allow users to conduct business, play games, and more easily work from home or shop via the internet. These services are 'always on', so users do not have to wait for the computer to connect to the internet. The full report considers various higher bandwidth technologies, including:

- ADSL (Asymmetric Digital Subscriber Line) which uses standard copper telephone wire but allows higher speed communications. By November 2001 there were ~110,000 ADSL subscribers in the UK.
- Cable modems, which use the communications cable network. By November 2001, there were ~170,000 cable modem subscribers in the UK.
- 'Fixed wireless' access, where users attach an antenna to the outside of their building and receive data from a central transmitter. Licences to operate these services were auctioned by the Government in November 2000, but less than half were sold – a further auction is currently being held.
- 'Third generation' (3G) mobile phones, which are due to be launched in the UK in 2002/3 and will enable internet access (although the likely speed of this access is a matter of some debate). 3G trial services were launched in autumn 2001, in the Isle of Man and Japan.

As noted on page 2, UK broadband take-up has been relatively slow. In addition, there is concern over the geographical extent of broadband coverage. BT has converted exchanges covering 60% of the population to ADSL but has informed Oftel that it does not currently have plans to upgrade additional exchanges. Similarly, cable passes only half of UK homes. The Government's broadband policy paper *UK online: the broadband future*[9] included estimates that 15-20% of the population would have no broadband coverage by 2003, with large (predominantly rural) areas unserved.

The full report considers possible reasons for the lack of broadband penetration in the UK and examines Government policy in this area. It also considers the work of the Broadband Stakeholder Group, which is chaired by the e-Minister and includes representatives from industry, Government, regulators, etc. In particular, the full report outlines plans to aggregate public sector procurement of broadband services, by which the Government aims to permit more cost effective procurement and potentially persuade communications operators to extend broadband to areas which otherwise would not be covered.

Switching off analogue TV

Until 1998, all TV channels in the UK were received in analogue form. By encoding the signal digitally more services can fit into the same amount of spectrum and a greater range of interactive services is possible. Digital TV in the UK can currently be accessed by three main methods:

- digital satellite, mainly provided in the UK by BSkyB;
- digital terrestrial television (DTT) delivered through TV aerials. Provided by various organisations including the BBC and ITV Digital, and retailed by ITV Digital;
- digital cable, via companies such as NTL or Telewest.

Traditional analogue televisions cannot receive digital signals, so viewers need either a set-top-box to convert the signal or an integrated digital TV set. Digital TV operators currently subsidise set-top boxes to customers.

Digital television is more efficient in its use of spectrum than analogue TV. By switching off analogue TV, the Government aims to release some of this spectrum for further digital services or other uses. In September 1999, the Government set two pre-conditions for switch-off:

- availability - everyone who can currently receive the main public service broadcasting channels on analogue television (99.4% of the population[10]) must be able to receive them digitally;
- affordability - as an indicator of this, 95% of consumers must have a digital receiver in the home.

The full report examines the problems that will need to be addressed before switch-off is possible, including:

- convincing the 15% of the population who say they will 'never' get digital TV;
- raising awareness of digital free-to-view services;
- converting households with more than one TV set[11];
- extending DTT coverage (currently only 68% of the population can receive all DTT services);
- improving DTT reception for set-top aerials.

The Government has said it may be possible to satisfy these conditions and turn off analogue TV by 2010. However, despite the fact that the UK is the most advanced digital TV market in the world, 95% take-up by 2010 seems unlikely without a significant level of Government intervention.

Competition and the market

The new communications market is changing rapidly. For instance, recent years have seen the emergence of new global companies such as Yahoo!, mergers creating large cross-media groups like AOL Time Warner and new markets and challenges for established companies such as BT. The full report considers the development of the communications market and regulation of trends such as vertical integration. In particular, overlap between the roles of the Office of Fair Trading and OFCOM will need to be minimised. It also examines some of the proposals in the White Paper about OFCOM's sector-specific powers and reform of media ownership rues.

Public service broadcasting

Convergence will have implications for public service broadcasting. There is wide agreement that such services will continue to have a role, for economic, democratic and cultural reasons, but there has been considerable debate over issues including the extent of OFCOM's role in regulating the BBC and the evolving nature of public service broadcasting in the multi-channel world. Also, in September 2001, the Secretary of State for Culture Media and Sport agreed to the BBC's plans for three new digital TV channels and five new digital radio channels. However, a proposed digital BBC 3 TV channel was turned down (although the BBC was asked to put forward fresh proposals for the channel) - this would have focussed on programmes for a young adult audience. Discussion centred on whether the new channels were distinctive compared with commercial services and the role of public service broadcasting in encouraging digital take-up.

Privacy

With the development of digital communications, it could become increasingly possible to collect large volumes of information about individuals' use of communications technologies - including telephones, the internet, digital TV and possibly even music listened to or computer games played. Greater numbers of mobile phone location-based services may also allow large scale monitoring of people's movements. Thus protection against unauthorised data-gathering and sharing will be increasingly important, both to protect people's fundamental right to privacy and to engender trust in new technologies. The full report examines how data can be collected and considers privacy from commercial organisations and from state surveillance.

Overview

It is unclear whether the Communications Bill will address effectively the fundamental changes which convergence may bring. There is, therefore, an argument for flexible legislation, which would allow regulation to evolve along with the market. However, broad-brush, outline legislation is not always welcomed by Parliament, as it can leave the Government scope to alter regulation fundamentally without substantial Parliamentary scrutiny. This is an issue which will need consideration if the Communications Bill is to be flexible enough to cope with the communications environment for the next ten years, while still setting out enough detail to allow Parliament to scrutinise policy.

Endnotes

1 The full report is available at POST's web site, or as a hard copy from POST (contact details are given below).
2 Although according to the Broadband Stakeholder Group, broadband geographical coverage is comparable with other G7 countries.
3 *A New Future for Communications*. A joint publication between the Department of Trade and Industry (DTI) and the Department of Culture Media and Sport (DCMS).
4 Published by the e-Minister and the e-Envoy, December 2001.
5 See *Regulating Internet Content*, POSTnote 159, June 2001.
6 *Consumers' use of Internet Oftel residential survey* August 2001.
7 *Internet access*, National Statistics, September 2001.
8 And Kingston Communications, the incumbent operator in Hull.
9 Office of the e-Envoy, February 2001.
10 Although the figure for Channel 5 is lower.
11 More than two thirds of UK households.

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The Parliamentary Office of Science and Technology, 7 Millbank, London SW1P 3JA Tel 020 7219 2840

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